2018

How Do Specialist Expertise, Auditor-Specialist Communication, And Time Pressure Affect Auditors' Use Of Specialists' Valuations?

Sara Gochnauer
University of Mississippi

HOW DO SPECIALIST EXPERTISE, AUDITOR-SPECIALIST COMMUNICATION, AND TIME PRESSURE AFFECT AUDITORS' USE OF SPECIALISTS' VALUATIONS?

A Dissertation
presented in partial fulfillment of requirements
for the degree of Doctor of Philosophy
in the Patterson School of Accountancy of
The University of Mississippi

by

SARA TINNIN GOCHNAUER

May 2018

ABSTRACT

This study experimentally investigates auditors' reliance on specialists' work regarding complex estimates. Specifically, this paper examines how the relevance of specialists' expertise (or the degree to which their prior experience matches the current task), the opportunity for auditor-specialist pairs to communicate, and the level of time pressure affect the extent to which auditors rely on specialists' estimates. To investigate the research question, I employ a mixed experimental design in an abstract setting, where college students take on the roles of auditor and specialist and work in auditor-specialist pairs to complete an estimation task. I manipulate the relevance of specialists' expertise by providing specialists with training that matches (mismatches) the estimation task that follows, auditor-specialist communication by allowing auditor-specialist pairs to chat (not chat) on the computer, and time pressure by varying the amount of time given to enter each estimate. My results show that the relevance of specialists' prior experience affects auditors' perception of specialists' expertise, which influences auditors' trust in specialists, ultimately affecting auditors' reliance in specialists' advice. Additionally, auditor-specialist communication significantly affects auditors' reliance on specialists, but only when specialists have relevant prior experience. Furthermore, auditors' opportunity to communicate with specialists indirectly affects their reliance on specialists through their developed trust due to auditors' perception of specialists' expertise rather than a social bond. I also find that auditors' reliance on specialists is significantly affected by the relevance of specialists' prior experience, but only when time pressure is low. When time pressure is high, there is no significant difference in auditors' reliance based on specialists' prior experience.

DEDICATION

To Mumsy and Pa.

LIST OF ABBREVIATIONS AND SYMBOLS

AICPA	American Institute of Certified Public Accountants
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
AS	Auditing Standard
ASC	Auditing Standards Codification
CAQ	Center for Audit Quality
FASB	Financial Accounting Standards Board
IRB	Institutional Review Board
PCAOB	Public Company Accounting Oversight Board

ACKNOWLEDGMENTS

This manuscript greatly benefitted from the thoughtful comments by Victoria Dickinson, Emily Hornok, Stephanie Moussalli-Kurtz, Rachna Prakash, Josh Simer, Mitch Wenger and workshop participants at the Graduate Research in Accounting Conference at Emory, the Accounting PhD Rookie Recruiting & Research Camp, Bucknell University, Northern Arizona University, and the University of Mississippi. I recognize the generosity of the Patterson School of Accountancy at the University of Mississippi and am grateful for the financial support from Dean Mark Wilder for this academic endeavor as well as others. I am especially thankful to Kendall Bowlin, my dissertation chair, mentor, co-author, and friend. I have the utmost respect for his intellect and integrity as an academic as well as his patience and humility as a person. His incredible support throughout my doctoral program was instrumental in developing my love of research, and I am forever indebted for his tremendous guidance. I am also extremely grateful to Jeremy Griffin, Jeffrey Pickerd, Brett Cantrell, and John Bentley for serving as members on my dissertation committee, each of whom was supportive, not only during the dissertation process, but throughout my time as a graduate student at the University of Mississippi. This manuscript greatly improved due to each member's time, consideration, and unique perspective. Lastly, I want to thank Pamela Church for being an inspirational professor and for prompting me to consider a permanent career in academia.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

Auditors' use of specialists' work on fair value measurements is heavily scrutinized. The Public Company Accounting Oversight Board (PCAOB) acknowledges current deficiencies and recently responded by issuing two proposals to strengthen auditing standards regarding auditors' use of specialists (PCAOB 2017b) and auditing accounting estimates, including fair value measurements (PCAOB 2017a). The purpose of this study is to experimentally investigate several of the primary concerns indicated by regulators, practitioners, and academics. Specifically, this paper examines how the relevance of specialists' expertise (or the degree to which their prior experience matches the current task) and their communication with audit teams affect the extent to which auditors rely on specialists' estimates of fair value measurements, and whether this relationship is moderated by time pressure.

Regulators encourage auditors to seek advice from specialists when dealing with complex, material matters that require knowledge or skill beyond auditors' own expertise (AICPA 1994). Fair value measurements pose a unique challenge due to inherent estimation uncertainty arising from unobservable, subjective inputs and imprecise estimation ranges (Bratten, Gaynor, McDaniel, Montague, and Sierra 2013; Griffin 2014; Cannon and Bedard 2017). As a result, they are fundamentally more difficult to audit. Following regulators' recommendation, auditors who lack the expertise needed to make complex valuation judgments often seek advice from specialists who generally help test client models and assumptions and develop independent estimates (Griffith 2014; Cannon and Bedard 2017).

Although using specialists should improve audit quality (PCAOB 2017b), PCAOB inspections consistently indicate audit deficiencies regarding fair value measurements and the use of specialists due to, for example, auditors obtaining insufficient understanding of, and over-relying on, specialists' assumptions (Bratten et al. 2013; Boritz, Robinson, Wong, and Kochetova-Kozloski 2014; Cannon and Bedard 2017). Prior qualitative research supports these concerns, finding that some auditors over-rely on specialists' work (Kadous and Zhou 2015), while others ignore it (Griffith 2014). Practitioners and academics note that a lack of regulatory guidance regarding the use of specialists in conjunction with inherent task complexity, communication problems, and various other factors make it difficult for auditors to appropriately assess and incorporate specialists' work (Griffith 2014; Boritz et al. 2014).

It is important to examine present weaknesses within the auditor-specialist relationship, particularly regarding fair value measurements, because fair value measurements are value-relevant to financial statement users (Cannon and Bedard 2017) and inherently vulnerable to biased reporting due to estimation uncertainty (Bratten et al. 2013), yet auditors often lack the expertise to provide reasonable assurance over fair value measurements on their own. Because the prevalence of fair value measurements in financial reporting is likely to continually grow (CAQ 2011; Cannon and Bedard 2017), and the use of specialists is linked to fair value measurements, the use of specialists is likely to grow as well. Therefore, it is increasingly important to evaluate how auditors integrate valuation specialists' work with other audit evidence, as it directly impacts audit quality.

This study considers conditions in which the specialist's prior experience differs from his/her current valuation task, which is important because each engagement has unique valuation settings and not all knowledge of fair value measurements is transferrable. Valuation specialists

with prior stock-option pricing experience, for example, may not be the best choice to assess goodwill impairment, or vice versa (Bratten et al. 2013). Prior research indicates that auditors most often engage their firms' in-house specialists when consulting valuation specialists. However, accounting firms may not always have an available specialist with experience that is specific to the auditor's needs[1] and, consequently, a mismatch is created between the specialist's experience and the current valuation task. Such a mismatched specialist could still be helpful, but auditors should consider their background before heavily relying on their work (AICPA 1994). Regulators, however, have noted auditors' failure to thoroughly assess the appropriateness of specialists' qualifications (PCAOB 2015).

Regulators, practitioners, and academics also note a pervasive lack of auditor-specialist communication, resulting in auditors' insufficient understanding and testing of valuation models and assumptions as well as inconsistent follow-up procedures (Griffith 2014; PCAOB 2015). Communication problems between auditors and specialists are particularly concerning when specialists are mismatched because, without communicating, auditors are less likely to consider whether the assigned specialist is appropriate for the task and are, thus, less likely to reevaluate their reliance on the specialist's work. Furthermore, academics note that time pressure to meet year-end deadlines can exacerbate the already-present communication issues (Griffith 2014). Due to the potential interdependence of specialist expertise, auditor-specialist communication, and time pressure, it is important to consider these three factors together.

To investigate the research question, I employ a 2 x 2 x 2 mixed experimental design in an abstract setting, according to the tenets of experimental economics (Freidman and Sunder 1994), where college students take on the roles of auditor and specialist and work in auditor-

[1] For example, a firm may not employ a specialist with matching experience or a specialist with matching experience may not be available due to time constraints.

specialist pairs to complete an estimation task analogous to fair value measurements. The participants' task is to guess the number of gumballs in a pictured container, and the general procedures follow that of a typical judge-advisor system, in which both parties independently make an initial decision simultaneously, the judge receives advice, and then the judge makes the final decision (Bonaccio and Dalal 2006; Kadous, Leiby, and Peecher 2013).[2] Accordingly, in my study, the auditor and specialist each view a picture of a container filled with gumballs and make an initial estimate of the number of gumballs in the container. Then, the auditor learns the specialist's estimate, after which the auditor makes a final estimate.

Students in the specialist role receive training prior to the compensation rounds, during which they gain experience guessing the number of gumballs (weight of kernels of corn), creating a match (mismatch) with the experimental task, thus manipulating the relevance of specialist expertise. To manipulate communication, the auditor-specialist pair is either allowed to chat via the computer program, z-Tree (Fischbacher 2007), or work without chatting. Finally, to manipulate time pressure, each round has either a long or short time limit. Specialist expertise and communication are both manipulated between-subjects, but time pressure is manipulated within-subjects, so counterbalancing is implemented to control for potential order effects. The dependent measure of interest is how much those in the auditor role adjust their estimate based on the advice provided by those in the specialist role.

My results indicate a significant effect of the relevance of specialists' prior experience on auditors' reliance on specialists, which is mediated through auditors' perception of specialists' expertise and their subsequent trust in specialists. Additionally, the opportunity to communicate significantly affects auditors' reliance on specialists, but only when specialists have relevant

[2] The judge-advisor system has been applied in prior audit studies, such as when auditors seek informal advice from other auditors (e.g., Kadous, Leiby, and Peecher 2013). Because the judge-advisor system also represents the auditor-specialist relationship, it is appropriate for this study's setting.

prior experience. I also find that auditors' opportunity to communicate with specialists indirectly affects their reliance on specialists through their trust in specialists. Furthermore, when specialists have relevant prior experience, the opportunity to communicate with specialists increases auditors' perception of specialists' expertise as well as their bond with the specialist, but only the perceived specialist expertise affects auditors' reliance on specialists' advice. When specialists do not have relevant prior experience, the opportunity to communicate with specialists only increases auditors' bond with the specialist, not their perception of specialists' expertise, and only the perceived specialist expertise affects auditors' reliance on specialists' advice. Lastly, I find that auditors' reliance on specialists is significantly affected by the relevance of specialists' prior experience, but only under conditions of low time pressure. When high time pressure is present, there is no significant difference in auditors' reliance based on specialists' prior experience.

This study has important practical implications because the PCAOB is considering revising existing auditing standards due to current reliance concerns regarding auditors' use of specialists' work over fair value measurements (PCAOB 2017a, b). Results from this study provide valuable insight for standard-setters by evaluating whether the relevance of specialists' expertise affects auditors' judgments and decisions when relying on specialists' work and whether increased communication between auditors and specialists is a potential solution for current problems in the auditor-specialist relationship. This study also takes time pressure into account, which is highly applicable in the audit setting due to typical busy season time constraints.

The remainder of the paper is as follows: Section II provides background on auditing fair value measurements, advice-seeking and expertise, and auditors' use of specialists; Section III

develops the hypotheses for specialist expertise, auditor-specialist communication, and time pressure; Section IV explains the research methodology; Section V discusses the study's results; and Section VI concludes the paper.

II. BACKGROUND

Auditing Fair Value Measurements

Fair value measurements[3] are informative to financial statement users and are increasingly required by regulators (Griffin 2014), yet they are inherently difficult to audit. Estimation uncertainty arises from a combination of input subjectivity and outcome imprecision, where input subjectivity refers to the input's observability (classified as Level 1, 2, or 3) and outcome imprecision signifies a range of potential values (Griffin 2014), which creates unique complexity that involves significant judgment (Bratten et al. 2013). Evaluating fair value measurements also requires extensive knowledge and training outside auditors' accounting expertise because various economic and business factors must be considered (CAQ 2011; Bratten et al. 2013). As a result, auditors may misinterpret valuation models' critical risks and assumptions (Griffith, Hammersley, and Kadous 2015), potentially harming audit quality.

Ambiguous guidance from standard-setters exacerbates the situation by demanding additional auditor judgment. AS 2501 and 2502 are both applicable to fair values in certain cases,[4] but it may be unclear how to best apply the standards (Bratten et al. 2013). Furthermore, suggestions are given in lieu of specific guidelines, so auditors must decide whether to test management's process, develop an independent estimate, or review subsequent events (Bratten et al. 2013; Griffith et al. 2015). Research shows that auditors often over-rely on management's model and assumptions and simply verify the components rather than develop independent

[3] According to ASC 820, fair value is defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (FASB 2011).
[4] AS 2501 involves auditing all accounting estimates, whereas AS 2502 specifically focuses on fair value measurements and disclosures (AICPA 1989, 2003).

estimates and assertions to better gauge the reasonableness of the model (Griffith et al. 2015). Correspondingly, the PCAOB continually reports audit deficiencies related to fair value measurements (Cannon and Bedard 2017).

Advice-Seeking and Expertise

Prior literature primarily focuses on taking, rather than giving, advice, but there is no comprehensive advice theory (Bonaccio and Dalal 2006). In general, an advisor provides advice to the decision-maker, referred to as the judge, who must then decide how to apply it. Research shows that, although seeking advice can improve judges' decisions by reducing mistakes, better organizing information, and expanding focus (Bonaccio and Dalal 2006), judges often discount advisors' recommendations due to, for example, anchoring (Tversky and Kahneman 1974), egocentric bias[5] (Krueger 2003), or lack of justification (Yaniv 2004), which results in less optimal outcomes (Bonaccio and Dalal 2006).

Advisor expertise, however, is shown to reduce advice discounting (e.g., Harvey and Fischer 1997) because expert advice is viewed as more informative and is, thus, more persuasive, particularly in complex settings (Bonaccio and Dalal 2006). When complicated situations arise and judges do not possess the necessary knowledge or skills, they must rely on advisors (Giddens 1990, 1991) who gain expertise through task-specific experiences and training (Bonner and Lewis 1990). Using expert advice gives judges a sense of comfort (Giddens 1990, 1991) because experts develop multifaceted cognitive structures through their experiences that allow them to better organize and process complex information (Spilker and Prawitt 1997).

[5] Harvey and Harries (2004) analyze anchoring and egocentrism, stating that anchoring is temporary and relates to the present stimulus, whereas egocentrism is a long-term effect based on one's opinion. After running two experiments, Harvey and Harries (2004) conclude that egocentrism is the predominant cause of advice discounting compared to anchoring.

Auditors' Use of Specialists

Auditors' use of specialist advice continues to grow as the business environment becomes increasingly complex. Specialists are now involved in roughly 90 percent of the audits at large accounting firms (PCAOB 2015), are used for both private and public clients (Selley 1999), cover a variety of fields, such as tax, information technology, and forensic accounting, and can be incorporated at virtually any stage of the audit process (Bauer and Estep 2014; Boritz et al. 2014). They are known to help with audit team selection, materiality and risk assessments, and audit planning, for example (Boritz et al. 2014). By seeking specialist advice, auditors can improve their professional skepticism and judgments, enhance defensibility through better justification, and reduce liability by shifting responsibility (Kadous et al. 2013).

Specialists are generally classified as either technical accounting or non-accounting and as either internal or external. Technical accounting specialists are experts in specific accounting and auditing issues, whereas non-accounting specialists' expertise is in other fields, such as valuation and credit risk assessment. Internal specialists are those employed by the accounting firm, while external specialists work for a third-party and are contracted for the audit engagement (Griffith 2014). To evaluate concerns about auditing fair value measurements, this paper specifically focuses on the use of internal valuation specialists because the PCAOB notes that many large accounting firms employ specialists (PCAOB 2015), and prior valuation research indicates that the use of internal specialists is most prevalent.[6]

Qualitative research reveals that valuation specialists assist auditors by evaluating preparer qualifications, analyzing preparer methodology, testing model accuracy, and evaluating underlying assumptions, such as discount rates, market benchmarks, and industry trends (Griffith

[6] Of the auditors interviewed in Griffith (2014), 26 utilized internal specialists compared to only 6 using external specialists. Also, Cannon and Bedard (2017) finds that auditors use valuation specialists in 86 percent of engagements, over 85 percent of whom are internal.

2014). They also help develop independent estimates for comparison purposes (Cannon and Bedard 2017). Auditors, on the other hand, focus on evaluating client-specific financial measures, such as expected revenues and expenses (Griffith 2014), which they can better assess due to their experience on the audit engagement. Actual practices may vary across engagements, though, due to a lack of specific guidance[7] (Boritz et al. 2014; Griffith 2014).

Concerns about Auditor Reliance on Specialist-provided Valuations

Although seeking expert advice is one of the primary ways auditors can reduce estimation uncertainty surrounding complex estimates (Cannon and Bedard 2017), regulators, practitioners, and academics have expressed concern regarding auditors' use of specialists' work by identifying cases of both over- and under-reliance on specialists. According to AS 1210, when using a specialist, auditors must develop an understanding of the specialist's method, test pertinent data, and evaluate the specialist's conclusions (AICPA 1994; Cannon and Bedard 2017), because even experts occasionally misinterpret information and give bad advice (Giddens 1990; Kadous et al. 2013). To remain professionally skeptical, all audit evidence, including that from specialists, should be appropriately scrutinized (AICPA 1972).

However, some studies find that auditors over-rely on specialists by failing to appropriately understand and evaluate the reasonableness of specialists' methods and findings (Bratten et al. 2013; PCAOB 2015). Griffith (2014) notes that auditors are often more focused on their own work and less concerned with reviewing specialists' work, possibly viewing it as peripheral (Kadous and Zhou 2015). Conversely, auditors are also shown to under-rely on

[7] AS 2501 and 2502 refer auditors to AS 1210 for guidance on the use of specialists (AICPA 1989, 2003). However, AS 1210 only covers external, non-accounting specialists. AS 1201 is for internal specialists, but only with technical accounting expertise (AICPA 2006). Therefore, there are no established guidelines for auditors using internal, non-accounting specialists. Griffith (2014) finds that auditors often follow AS 1210 for internal valuation specialists, but it lacks specific details about when and how auditors should involve specialists.

specialists by ignoring specialist caveats[8] they deem insignificant, editing specialist wording for clarification purposes, and even deleting information that contradicts other audit evidence because they consider it immaterial (Griffith 2015). As a result, the specialist report is modified in such a way that it supports the audit team's own view and disregards specialist involvement. In either case of under- or overreliance, audit quality is diminished.

[8] Specialist caveats call attention to items the specialist thinks are important and/or require follow-up procedures. There are three types of caveats. Recommendation caveats suggest changes to the client's current valuation method, open item caveats point out valuation inputs the auditor is responsible for testing, and reservation caveats describe potential problems uncovered during specialists' tests (Griffith 2015).

III. HYPOTHESES DEVELOPMENT

Specialist Expertise

Experts are considered reliable because they possess domain-specific knowledge that enables them to better interpret information in their identified field, and their expertise likely transfers between similar settings (Hammersley 2006), such as companies operating in the same industry. Prior research confirms that, in cases requiring industry-specific knowledge, industry expertise positively affects audit quality (for e.g., Bedard and Wright 1994; Wright and Wright 1997; Wright and Bedard 2000). However, expertise is not generally applicable, and industry specialists working in a different industry lose their comparative advantage. Hammersley (2006) demonstrates that auditors with relevant, or matched, industry expertise develop more elaborate problem representations and, thus, respond to indications of potential misstatement more effectively than auditors with irrelevant, or mismatched, industry experience.

Likewise, valuation specialists' expertise and experiences are not automatically interchangeable due to the unique aspects of different valuation tasks (e.g. stock-option pricing versus estimating goodwill impairment) and distinct engagement settings (Bratten et al. 2013). Recognizing the importance of relevant expertise, AS 1210 states that auditors should evaluate whether the specialist's qualifications are appropriate for the specific task when determining specialist involvement (AICPA 1994). However, the PCAOB maintains that auditors inadequately evaluate specialists' expertise and need to more thoroughly assess specialists' knowledge, skill, and objectivity (PCAOB 2015). Griffith (2015)'s results support this concern, finding that only 68 percent of auditors interviewed consider specialist characteristics, which

prompts the first set of hypotheses in this study examining auditors' reliance on specialists with different degrees of relevant expertise.

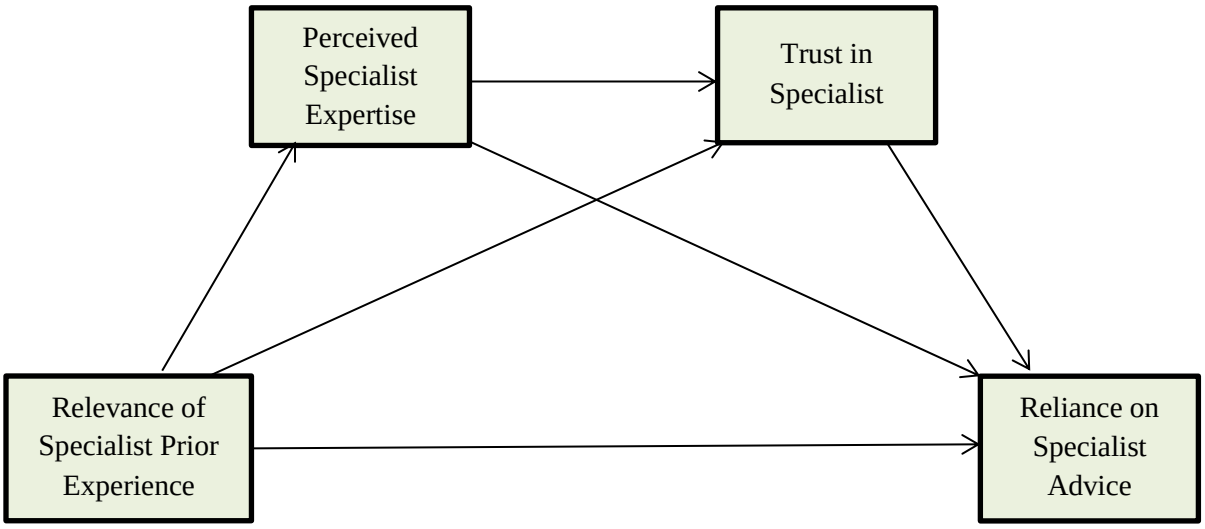
Bonaccio and Dalal (2006) state that the extent to which judges rely on advice is positively related to the level of trust they have in the advisor, which can be affected by numerous factors, including the advisor's prior experience (Griffith 2014). As advisors obtain more task-relevant knowledge and experience, they develop "expert power", which increases judges' trust in advisors, prompting judges to weigh their advice more heavily (Bonaccio and Dalal 2006). Therefore, I propose a serial mediation model in which the relevance of specialists' prior experience affects auditors' perception of specialists' expertise and, thus, their trust in specialists, which ultimately affects auditors' reliance on specialists' advice. Auditors who receive advice from specialists with more relevant experience will weigh advice more heavily than those who receive advice from specialists with less relevant experience due to their perception of the specialist as a relevant expert, which increases their trust in the specialist. The first set of hypotheses is as follows:

H1a: Auditors will rely more (less) heavily on specialists' advice when specialists have more (less) relevant, or matched (mismatched), experience.

H1b: The relevance of specialists' experience indirectly affects auditors' reliance on specialists' advice through auditors' perceptions of specialists' expertise and their subsequent trust in specialists.

FIGURE 1

Conceptual Diagram of Serial Mediation Analysis for H1



Auditor-Specialist Communication

Employed specialists at large accounting firms are often integrated into the core audit team (PCAOB 2015) and are involved throughout the engagement (Griffith 2015). However, valuations specialists are typically only engaged for certain tasks and are not considered audit team members (Boritz et al. 2014). Due to poor communication between auditors and valuation specialists, the current modular structure has resulted in auditors insufficiently understanding valuation models and assumptions, inadequately testing source data, discounting specialists' findings, and failing to follow-up on specialist caveats (PCAOB 2015; Griffith 2015), which all increase the likelihood of audit deficiencies. To alleviate problems, the PCAOB recommends better auditor-specialist integration and communication (PCAOB 2015), which motivates my research question about communication.

Prior qualitative research discusses how better communication between auditors and specialists leads to more effective collaboration between the two parties (Bauer and Estep 2014). By allowing specialists to provide auditors with their reasoning and justifications, inappropriate advice discounting should diminish (Yaniv 2004). Better communication may also help develop stronger social bonds and improve trust between the two parties. Bowlin, Hobson, and Piercey (2015) find that giving auditors and managers the opportunity to chat increases the extent to which auditors trust management representations. In this regard, improving communication between auditors and specialists should increase auditors' trust in specialists and, thus, their reliance on specialists' work.

While this is likely beneficial when the specialist has relevant experience, it may be detrimental in cases of specialist mismatch. The trust heuristic results in heavily weighing advice regardless of justification, particularly in complex settings such as fair value measurements

(Kadous et al. 2013), so increased communication leading to increased trust could result in an overreliance on inappropriate advice. On the other hand, because trust in experts is affected by perceived expert effectiveness (Griffith 2014), bringing specialist mismatch to light through increased communication may reduce auditor reliance. Therefore, I expect auditor-specialist communication to affect auditors' reliance on specialists through auditors' trust in specialists. When specialists have relevant prior experience, auditors are likely to rely more heavily on their work when communication is available. However, due to competing arguments, the directional effect of communication when specialists do not have relevant experience is undetermined at this time. The second set of hypotheses is as follows:

H2a: Auditor-specialist communication will increase the extent to which auditors rely on matched specialists' advice.

H2b: Auditor-specialist communication will affect the extent to which auditors rely on mismatched specialists' advice.

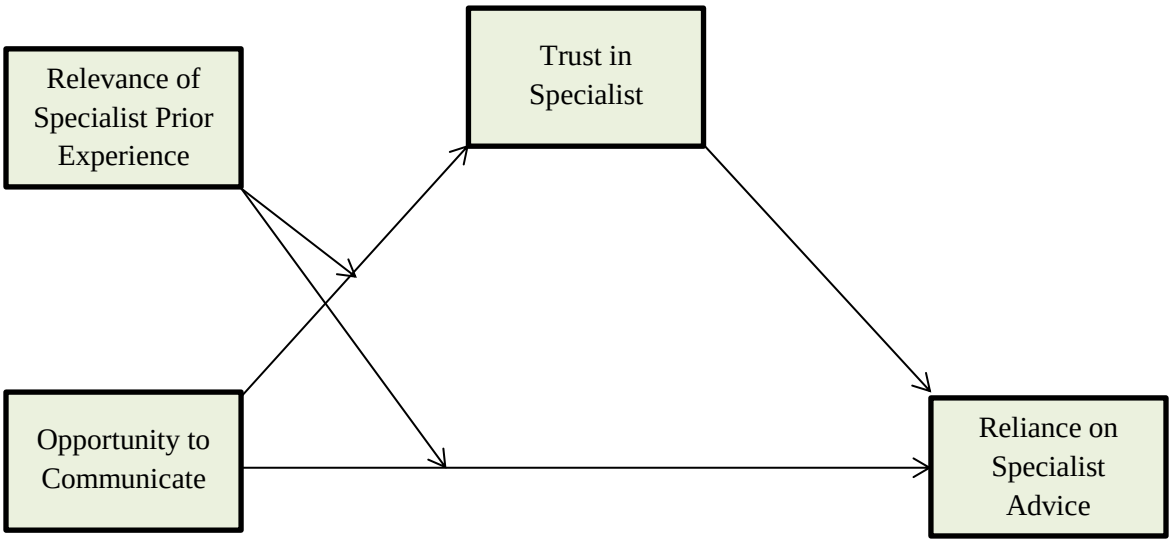
H2c: Auditor-specialist communication indirectly affects auditors' reliance on specialists' advice through auditors' trust in specialists.

H2d: Auditor-specialist communication will increase the extent to which auditors trust specialists when specialists have more relevant, or matched, experience.

H2e: Auditor-specialist communication will affect the extent to which auditors trust specialists when specialists have less relevant, or mismatched, experience.

FIGURE 2

Conceptual Diagram of Moderated Mediation Analysis for H2



Time Pressure

Another concern regarding auditors' use of specialists' work is the effect of time pressure[9] resulting from auditors' and specialists' excessive workloads at year-end, which prior research notes exacerbates the communication problems previously discussed (Griffith 2014).

Psychology research generally indicates that time pressure is detrimental to task performance due to increased psychological stress (Low and Tan 2011), which was also the predominant view in much accounting literature. For example, prior accounting studies show that audit quality declines as time pressure escalates (see DeZoort 1998). Because auditors have limited time to complete year-end procedures, they likely use filtration as a coping mechanism, which causes them to focus on key audit areas and only consider the most important information (Sevenson and Edland 1987; Glover 1997). Although this strategy increases audit efficiency, it can also lead to lower audit quality if relevant information is mistakenly ignored. Studies show that elevated time pressure can hurt audit effectiveness by reducing the time spent reviewing pertinent information (McDaniel 1990; Arnold, Sutton, Hayne, and Smith 2000) and causing auditors to accept weaker audit evidence and prematurely sign-off on audit procedures (Kelley and Margheim 1990; Glover 1997).

Alternatively, several accounting researchers have documented various benefits of time pressure, such as increased task focus, motivation, efficiency, and job satisfaction (see DeZoort 1998), thus refuting the view that time pressure is always bad. Spilker (1995) finds that time pressure positively affects tax researchers' performance when they have relevant prior experience, and Spilker and Prawitt's (1997) extension, which further investigates the interaction

[9] Time pressure literature has two distinct classifications, time budget pressure, which involves allotted amounts of time allowed to complete each task, and time deadline pressure, which arises from specific points in time set for task completion (DeZoort and Lord 1997; DeZoort 1998). Most prior research examines time budget pressure, whereas the focus of this paper is time deadline pressure (henceforth referred to solely as "time pressure" for simplicity).

between time pressure and expertise, concludes that acquired knowledge enables decision makers to better identify and encode important information in an efficient manner when facing time pressure.

Considering the potential for both positive and negative effects, many now describe the relationship between time pressure and performance as an inverted-U function, in which performance is initially low because low stress allows individuals to attend to many cues, including those that are irrelevant. Then, as stress rises, individuals' attention improves and they focus more on relevant information. At a certain point, however, the stress becomes overwhelming and even relevant material is disregarded, resulting in diminished performance (Easterbrook 1959; Choo 1995; Spilker 1995; DeZoort and Lord 1997). Because auditors face extreme time pressure at year-end, it is likely they fall at the far end of the inverted-U function where performance is suboptimal due to excessive stress. Furthermore, because prior research provides evidence that auditors accept weaker audit evidence when facing time pressure, I expect additional time pressure to negatively affect audit quality by increasing auditors' reliance on specialists' work, even in the case of specialist mismatch.

Based on **H1**, auditors are expected to rely more on matched specialists' work, so greater time pressure may still increase the extent of reliance, but it is likely to result in a smaller change because there is less room for growth, as they are already relying so heavily. On the other hand, **H1** predicts that auditors will rely less on mismatched specialists' work, so there is more room for growth. Therefore, increased time pressure is expected to have a greater positive effect on auditors' reliance on specialists' work when the specialist is mismatched. The third hypothesis is as follows:

H3: Time pressure will have a more positive effect on auditors' reliance on specialists' advice when specialists have less relevant, or mismatched, experience compared to more relevant, or matched, experience.

IV. METHODOLOGY

Setting

To examine the underlying theory, this study applies experimental economics methods (Friedman and Sunder 1994) using an abstract, cooperative game in a controlled laboratory setting analogous to the audit setting of interest but excluding audit-specific context. Participants are randomly assigned to either the auditor or specialist role[10] and work together in pairs on an estimation task that corresponds to fair value measurements. To provide real economic incentives, students are paid a $5 participation fee and have the opportunity to earn additional compensation based on their judgments. A $10 prize is awarded each round to the pair with the most accurate final estimates, giving $5 to each winning participant. There are 20 rounds altogether, so each participant has the opportunity to earn between $5 and $105 in total.

Participants

The populations of interest are all professional financial auditors and valuation specialists in the United States. However, because my setting is simple and abstract, it is not necessary that participants have auditing knowledge and experience. Therefore, consistent with experimental economics literature (Friedman and Sunder 1994; Kachelmeier and King 2002) and the advice of Libby, Bloomfield, and Nelson (2002), the participants consist of college students rather than practitioners. I recruited participants for my experimental sessions from accounting classes at the University of Mississippi. All volunteers at least 18 years old were accepted into the study. As an

[10] To maintain an abstract setting, the participant materials use generic language. "Guesser" and "Estimator" correspond to the auditor and specialist roles, respectively.

additional note, the university's Institutional Review Board (IRB) reviewed and approved this study before I started any data collection.

Procedures

The experiment was conducted using z-Tree software (Fischbacher 2007), which randomly assigned participants as either the auditor or specialist.[11] Written instructions describing the setting and each player's role were given to participants, which I also read aloud at the beginning of the session.[12] Those assigned as the specialist then completed 20 training rounds. During each training round, each specialist viewed a picture on the computer of a container, which changed each round, filled with either gumballs or kernels of corn (see design section below), entered an estimate of the amount, and then learned the correct amount. By receiving feedback after each round, the specialists were able to refine their estimation process and improve decision accuracy (Bonaccio and Dalal 2006), thus developing expertise.[13]

To accommodate auditors while specialists were training, they each received a packet that contained a crossword puzzle, word searches, and a Sudoku puzzle, which they were able to work on while they waited. They were instructed that these activities were completely optional, unrelated to the experiment, and did not affect their earnings.

Once training was complete, the compensation rounds began, at which time z-Tree randomly paired each auditor with one specialist. These pairings remained unchanged for all 20 rounds. At the beginning of each round, participants viewed a picture of a container, which changed each round, filled with gumballs, and both the auditor and specialist submitted an initial estimate. Depending on the experimental condition, the auditor and specialist were then either

[11] Appendix B provides screenshots of z-Tree for both the auditor and specialist roles.
[12] Appendix A provides the written instructions that were read aloud. A bulleted, outline version was given to participants to follow along.
[13] The participant instructions emphasize that participant earnings are not determined by the training rounds.

allowed to chat via z-Tree for 30 seconds or not. Once the chat concluded (if applicable), the auditor was notified of the specialist's estimate. The auditor then submitted a final estimate, thus ending the round.[14] Participants did not receive any feedback during the compensation rounds to prevent learning effects.

After completing all 20 compensation rounds, participants were notified that the experiment concluded. They then filled out a post-experimental questionnaire,[15] which included comprehension checks; measures of perceived expertise, trust in their partner, bond with their partner, and trait skepticism;[16] and key demographics. Before leaving, they received their participant fee of $5 and any prize money they earned.

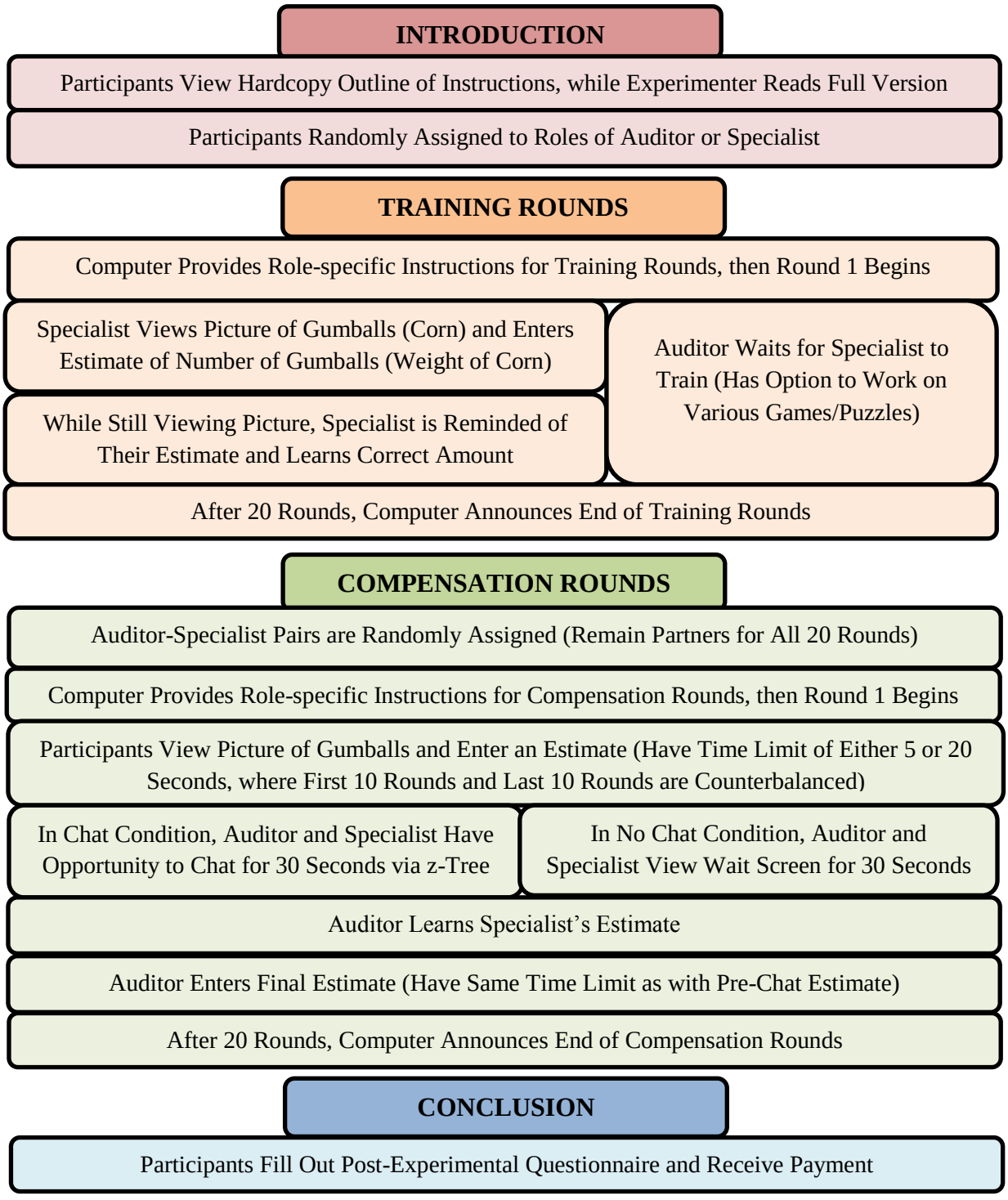
[14] The procedures implemented in this study follow that of a typical judge-advisor system, during which the judge and advisor simultaneously make an initial decision based on equally available information, the judge receives the advisor's recommendation, and then the judge decides how heavily to weigh the advice when making the final decision (Bonaccio and Dalal 2006).

[15] Appendix C provides participants' post-experimental questionnaire.

[16] Hurtt (2010) develops a scale to measure trait professional skepticism consisting of six factors: a questioning mind, a suspension of judgment, a search for knowledge, interpersonal understanding, self-esteem, and autonomy. Because a search for knowledge and interpersonal understanding are not pertinent to this study, those items were removed from the post-experimental questionnaire.

FIGURE 3

Detailed Procedures of Experiment



Design

This experiment uses a 2 x 2 x 2 mixed design. The first independent variable, *specialist experience*, is manipulated between-subjects at two levels. In the Matched condition, specialists train by estimating the number of gumballs in various containers, while those in the Mismatched condition train by estimating the weight of corn. Although both groups of specialists gain some form of estimation experience, those in the Matched condition gain directly relevant experience because the actual experimental task in all conditions is estimating the number of gumballs, whereas those in the Mismatched condition do not. Therefore, only specialists' in the Matched condition gain relevant expertise for auditors' assigned task.

The second independent variable, *communication*, is also manipulated between-subjects at two levels, where auditor-specialist pairs in the Chat condition are able to communicate during the experiment through an online z-Tree (Fischbacher 2007) chat box, while auditor-specialist pairs in the No Chat condition are not. In the Chat condition, participants are able to communicate with their partner for 30 seconds after making their initial estimates but before the auditors make their final estimates. To maintain ceteris paribus conditions, those in the No Chat condition also wait 30 seconds between the initial and final estimates, but they have a "wait screen" instead of a chat box available. After the 30 seconds, the specialist's initial estimate is revealed to the auditor before he/she enters the final estimate.

The third independent variable, *time pressure*, is a within-subjects variable and is manipulated by allotting auditors either 5 seconds or 20 seconds to submit each estimate during the round. Following Spilker (1995), I conducted a pilot study approved by the university's IRB to determine the appropriate length of time to give participants for each level of time pressure. The results of the pilot indicated that 20 seconds induces low time pressure by providing

participants enough time to comfortably make an estimate without feeling rushed but not having excess time left over, whereas 5 seconds induces high time pressure by providing participants with the minimum time necessary to make an estimate. To avoid potential order effects of this within-subjects variable, I counterbalanced the time limits such that half of the participants faced the 5 (20) second time limit during the first 10 compensation rounds and the 20 (5) second time limit during the last 10 rounds.

V. RESULTS

Manipulation Checks

In the post-experimental questionnaire, participants were asked to identify whether the tasks for the training and compensation rounds were the same, which was to estimate the number of gumballs. Most participants (84%) answered the manipulation check correctly based on their assigned *specialist experience* condition (answered "true" for matched condition and "false" for mismatched condition). However, those who failed the manipulation check were eliminated from the sample because I am unable to disentangle whether they misunderstood the training task and/or the compensation task, the proper understanding of which is vital for my analysis.

Tests of H1

H1a states that auditors will rely more heavily on specialists' advice when specialists have more relevant, or matched, experience than when they have mismatched experience. Table 1, Panel A lists the means and standard deviations for key variables across all independent variables, which provides support for my prediction for H1a. *Reliance on specialist* is measured as the proportion of the distance between the auditor's initial estimate and the specialist's advice that the auditor's final estimate adjusts,[17] thus demonstrating the extent to which auditors utilize specialists' advice when making their final decision (Kadous et al. 2013). For between-subjects factors (*specialist experience* and *communication*), r*eliance on specialist* is averaged over all

[17] *Reliance on specialist* = (auditor final estimate– auditor initial estimate) / (specialist advice – auditor initial estimate). This definition follows Kadous et al. (2013), excluding absolute values due to potential interest in directional movement. Because *reliance on specialists* is an unbounded dependent variable, outliers were winsorized at the top and bottom three percent. As a robustness check, *reliance on specialists* was also rank ordered; results were statistically unchanged.

available rounds for each participant, resulting in one observation per participant. For the within-subjects factor (*time pressure*), r*eliance on specialist* is averaged over all available rounds for each participant within each *time pressure* condition, usually resulting in two observations per participant.[18] Per Table 1, Panel A, auditors in the matched condition rely more heavily on specialists' advice (mean = 62.03%) than auditors in the mismatched condition (mean = 47.45%).

[18] During each round, participants who exceeded the time limit were not able to submit an estimate. Participants who did not submit an estimate for at least half of the rounds per time pressure condition were excluded from the sample for that respective time pressure condition. Thus, not all participants are present in both time pressure conditions.

TABLE 1
Means (Standard Deviations) by Experimental Condition

Panel A: By Independent Variable

	Specialist Experience[a]		Communication[b]		Time Pressure[c]	
	Match	***Mismatch***	***Chat***	***No Chat***	***High***	***Low***
n	n = 26	n = 22	n = 24	n = 24	n = 43	n = 48
Reliance on Specialist	62.03% (24.74%)	47.45% (30.62%)	60.52% (20.13%)	50.17% (34.20%)	56.42% (29.81%)	54.53% (28.18%)
Professional Skepticism	72.31 (6.92)	72.86 (8.47)	71.24 (7.90)	73.89 (7.19)	72.82 (7.96)	72.56 (7.59)
Perceived Specialist Expertise	4.19 (1.67)	2.77 (1.19)	4.17 (1.27)	2.92 (1.72)	3.63 (1.68)	3.54 (1.62)
Trust in Specialist	5.04 (1.84)	4.64 (2.30)	5.79 (1.50)	3.92 (2.12)	4.95 (1.96)	4.85 (2.05)
Bond with Specialist	3.08 (2.08)	3.45 (2.28)	4.83 (1.81)	1.67 (1.01)	3.14 (2.09)	3.25 (2.16)
Estimation Error	-12.16% (27.49%)	-72.53% (11.61%)	-33.82% (42.77%)	-45.84% (30.47%)	-38.26% (38.93%)	-40.89% (35.89%)

Panel B: Specialist Experience[a] x Communication[b]

	Match		***Mismatch***	
	Chat	***No Chat***	***Chat***	***No Chat***
n	n = 14	n = 12	n = 10	n = 12
Reliance on Specialist	68.73% (16.60%)	54.21% (30.68%)	49.04% (19.66%)	46.13% (38.33%)
Professional Skepticism	70.52 (6.22)	74.40 (7.36)	72.26 (10.08)	73.37 (7.31)
Perceived Specialist Expertise	4.86 (0.95)	3.42 (2.02)	3.20 (1.03)	2.42 (1.24)
Trust in Specialist	5.93 (1.21)	4.00 (1.95)	5.60 (1.90)	3.83 (2.37)
Bond with Specialist	4.36 (1.95)	1.58 (0.90)	5.50 (1.43)	1.75 (1.14)
Estimation Error	-3.80% (28.26%)	-21.91% (24.11%)	-75.85% (12.52%)	-69.78% (10.53%)

TABLE 1 (continued)

Panel C: Specialist Experience[a] x Time Pressure[c]

	Match		*Mismatch*	
	High	***Low***	***High***	***Low***
n	n = 24	n = 26	n = 19	n = 22
Reliance on Specialist	61.53% (24.98%)	62.18% (25.80%)	49.97% (34.61%)	45.49% (28.76%)
Professional Skepticism	72.57 (7.12)	72.31 (6.92)	73.13 (9.12)	72.86 (8.47)
Perceived Specialist Expertise	4.29 (1.68)	4.19 (1.67)	2.79 (1.27)	2.77 (1.19)
Trust in Specialist	5.13 (1.68)	5.04 (1.84)	4.74 (2.31)	4.64 (2.30)
Bond with Specialist	3.00 (1.96)	3.08 (2.08)	3.32 (2.29)	3.45 (2.28)
Estimation Error	-10.86% (29.99%)	-14.49% (26.57%)	-72.86% (10.99%)	-72.08% (12.66%)

[a] Auditors assigned to the matched (mismatched) condition were randomly paired with a specialist who was trained by estimating the number of gumballs (weight of corn) prior to the partnered compensation rounds.

[b] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[c] Time pressure was manipulated as a within-subjects variable. When high (low) time pressure was present, auditors had 5 (20) seconds to submit each estimate.

Variable definitions:

Reliance on specialists = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

Professional Skepticism was obtained from the post-experimental questionnaire. Each auditors' professional skepticism score was calculated based on 19 items from the Hurtt (2010) trait skepticism scale (two of the six factors were excluded due to lack of relevance) using a seven-point Likert scale. The scale was transformed to a 100-point scale by dividing the individual's score by 133.

Perceived Specialist Expertise was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

TABLE 1 (continued)

Trust in Specialist was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

Bond with Specialist was obtained from the post-experimental questionnaire. Auditors assessed their development of a bond with their partner using a seven-point Likert scale.

Estimation error = the percentage difference between the auditor's final estimate and the correct amount.

To formally test my hypotheses, I employ a repeated-measures Analysis of Covariance (ANCOVA) model shown in Table 2, Panel A. The dependent variable is r*eliance on specialist* and the independent variables are *specialist experience*, *communication*, and *time pressure*, which are coded as either "1" or "0" for matched versus mismatched experience, chat versus no chat, and high versus low time pressure, respectively. I also include auditors' *professional skepticism* as a covariate, which was obtained from the post-experimental questionnaire.[19] The ANCOVA model in Table 2, Panel A demonstrates that *specialist experience* significantly affects *reliance on specialist* ($F = 5.12$, $p = 0.029$) in the predicted direction such that auditors rely more heavily on advice from matched than mismatched specialists, thus supporting H1a.

[19] *Professional skepticism* was calculated based on participants' responses to 19 items from the Hurtt (2010) trait skepticism scale (two of the six factors were excluded due to lack of relevance for this study) using a seven-point Likert scale. The scale was transformed to a 100-point scale by dividing the individual's total score by 133.

TABLE 2
Effects of Specialist Experience[a], Communication[b], and Time Pressure[c] on Reliance on Specialist[d]

Panel A: ANCOVA

Source	num df	denom df	F-test	p-value[e]	
Specialist Experience	1	43	5.12	0.029	**
Communication	1	43	4.04	0.051	*
Time Pressure	1	39	0.13	0.721	
*Specialist Experience*Communication*	1	43	0.50	0.483	
*Specialist Experience*Time Pressure*	1	39	0.25	0.619	
*Communication*Time Pressure*	1	39	0.09	0.767	
*Specialist Experience*Communication*Time Pressure*	1	39	0.23	0.636	
Professional Skepticism[f]	1	43	4.75	0.035	**

Panel B: Pairwise Contrasts

Source	num df	denom df	F-test	p-value[e]	
Effect of *Specialist Experience* under *No Chat*	1	82	1.24	0.269	
Effect of *Specialist Experience* under *Chat*	1	82	4.24	0.043	**
Effect of *Communication* under *Mismatched*	1	82	0.80	0.375	
Effect of *Communication* under *Matched*	1	82	4.06	0.047	**
Effect of *Specialist Experience* under *Low Pressure*	1	82	4.08	0.047	**
Effect of *Specialist Experience* under *High Pressure*	1	82	1.46	0.231	

Panel C: Planned Contrast[g]

Source	num df	denom df	F-test	p-value[e]	
*Specialist Experience*Time Pressure*	1	82	5.61	0.020	**

[a] Auditors assigned to the matched (mismatched) condition were randomly paired with a specialist who was trained by estimating the number of gumballs (weight of corn) prior to the partnered compensation rounds.

[b] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[c] Time pressure was manipulated as a within-subjects variable. When high (low) time pressure was present, auditors had 5 (20) seconds to submit each estimate.

TABLE 2 (continued)

[d] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.
[e] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.
[f] *Professional Skepticism* is a covariate obtained from the post-experimental questionnaire. Each auditors' professional skepticism score was calculated based on 19 items from the Hurtt (2010) trait skepticism scale (two of the six factors were excluded due to lack of relevance) using a seven-point Likert scale. The scale was transformed to a 100-point scale by dividing the individual's score by 133.
[g] Weights: -3 for *Mismatched, Low Pressure*; -1 for *Mismatched, High Pressure*; +2 for *Matched, Low Pressure*; +2 for *Matched, High Pressure*

Serial Mediation Analysis

To more fully evaluate the underlying process of auditors' reliance on specialist advice, H1b examines the indirect effects of *specialist experience* on auditors' *reliance on specialist* as mediated through auditors' *perceived specialist expertise* and subsequent *trust in specialist*. Measures for both mediators were obtained from the post-experimental questionnaire.[20] Figure 4 depicts the statistical diagram and Table 3 provides detailed results of the serial mediation analysis, for which I utilized Preacher and Hayes (2004)'s bootstrapping method. The mediation results demonstrate that *specialist experience* significantly affects auditors' *perceived specialist expertise* ($t = 3.33$, $p = 0.002$), auditors' *perceived specialist expertise* significantly affects auditors' *trust in specialist* ($t = 3.66$, $p = 0.001$), and auditors' *trust in specialist* significantly affects auditors' *reliance on specialist* ($t = 4.03$, $p < 0.001$), thus supporting H1b.

[20] *Perceived specialist expertise* was determined by the post-experimental question, "My partner has relevant expertise to complete the estimation task", which was rated on a seven-point Likert scale. *Trust in specialist* was determined by the reverse score of the post-experimental question, "I did not trust my partner", which was also rated on a seven-point Likert scale.

FIGURE 4

Statistical Diagram of Serial Mediation Analysis for H1

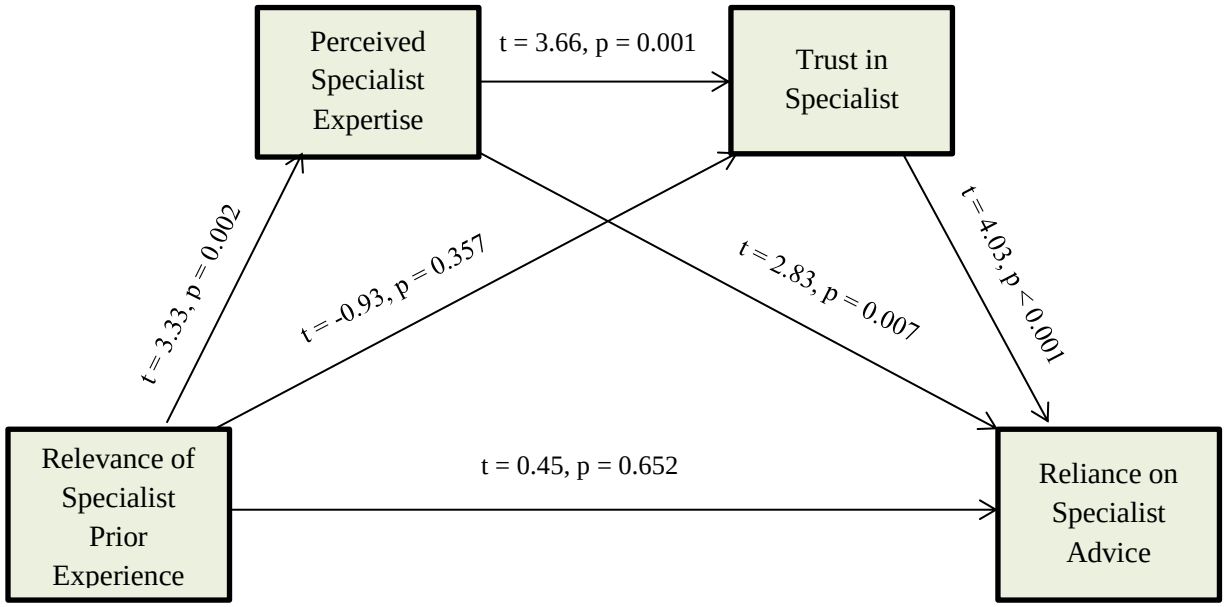


TABLE 3

Serial Mediation: Effect of Specialist Experience[a] on Reliance on Specialist[b] through Perceived Specialist Expertise[c] and Trust in Specialist[d] (H1)

Panel A: Regression Model of Perceived Specialist Expertise

	Coefficient	SE	t-stat	p-value	
Specialist Experience	1.42	0.43	3.33	0.002	***

Panel B: Regression Model of Trust in Specialist

	Coefficient	SE	t-stat	p-value	
Specialist Experience	-0.55	0.59	-0.93	0.357	
Perceived Specialist Expertise	0.67	0.18	3.66	0.001	***

Panel C: Regression Model of Reliance on Specialist

	Coefficient	SE	t-stat	p-value	
Specialist Experience	0.03	0.06	0.45	0.652	
Perceived Specialist Expertise	0.06	0.02	2.83	0.007	***
Trust in Specialist	0.06	0.02	4.03	<.001	***

Panel D: Serial Indirect Effects of Specialist Experience[f]

Path	Effect	SE	LLCI	ULCI
Total	0.12	0.06	0.004	0.254
Ind1	0.09	0.03	0.037	0.176
Ind2	0.06	0.03	0.021	0.141
Ind3	-0.04	0.04	-0.122	0.024

[a] Auditors assigned to the matched (mismatched) condition were randomly paired with a specialist who was trained by estimating the number of gumballs (weight of corn) prior to the partnered compensation rounds.

[b] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

[c] *Perceived Specialist Expertise* was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

[d] *Trust in Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

[e] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

TABLE 3 (continued)

[f] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the serial indirect effects based on the technique described in Hayes (2013). Total represents the total indirect effect of *Specialist Experience* on *Reliance on Specialist* through all specific indirect paths. Ind1 represents the indirect path from *Specialist Experience* to *Perceived Specialist Expertise* to *Reliance on Specialist*. Ind2 represents the indirect path from *Specialist Experience* to *Perceived Specialist Expertise* to *Trust in Specialist* to *Reliance on Specialist*. Ind3 represents the indirect path from *Specialist Experience* to *Trust in Specialist* to *Reliance on Specialist*.

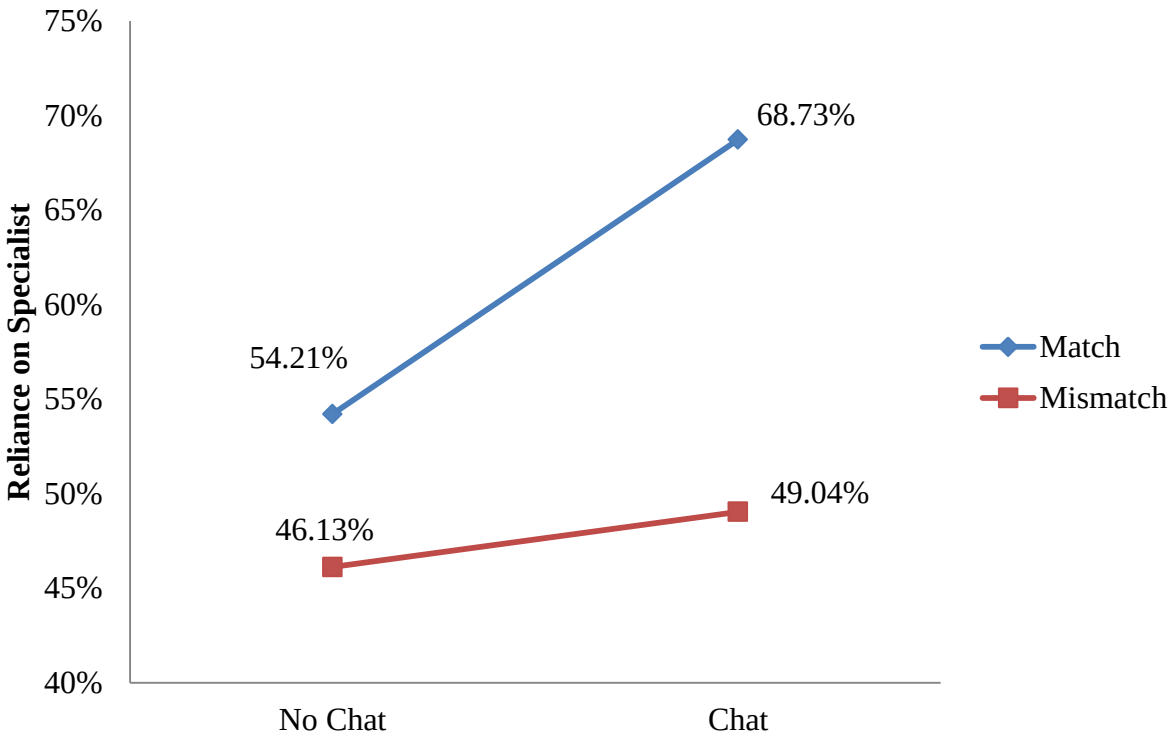
Tests of H2

H2a and H2b predict the effect of *communication*, moderated by *specialist experience,* on *reliance on specialist*. Table 1, Panel B describes the means and standard deviations for key variables for the two-way interaction of *specialist experience* and *communication*, and the respective means for *reliance on specialist* are plotted in Figure 5. Results suggest a main effect of *specialist experience* such that auditors rely more heavily on specialists' advice in the matched versus mismatched condition regardless of *communication* (matched and chat- 68.73%, matched and no chat- 54.21% versus mismatched and chat- 49.04%, mismatched and no chat- 46.13%) and a possible main effect of *communication*. As a formal test, the ANCOVA model in Table 2, Panel A confirms a significant main effect of *communication* on auditors' *reliance on specialist* ($F = 4.04$, $p = 0.051$).

The interaction in the ANCOVA model between *specialist experience* and *communication* in Table 2, Panel A, however, is not significant ($F = 0.50$, $p = 0.483$), prompting further evaluation. Table 2, Panel B provides the results of pairwise comparisons for the simple effects of *specialist experience* and *communication*, which indicate that the relevance of specialists' prior experience (matched versus mismatched) only significantly affects auditors' reliance on specialists when communication between auditors and specialists is available ($F = 4.24$, $p = 0.043$) and that the opportunity to communicate (chat versus no chat) only significantly affects auditors' reliance on specialists when specialists have relevant prior experience ($F = 4.06$, $p = 0.047$), which follows the predicted relationship in H2a but not H2b.

FIGURE 5

Effects of Specialist Experience and Communication on Reliance on Specialist



Mediation and Moderated Mediation Analyses

H2c, H2d, and H2e examine the indirect effect of *communication*, moderated by *specialist experience*, on auditors' *reliance on specialist* as mediated through auditors' *trust in specialist*. Figure 6 and Figure 7 depict the statistical diagrams for the mediation and moderated mediation analyses, respectively. Table 4 and Table 5 provide detailed results of the mediation and moderated mediation analyses, respectively, for which I utilized Preacher and Hayes (2004)'s bootstrapping method. The mediation analysis results demonstrate that *communication* significantly affects auditors' *trust in specialist* ($t = 3.53$, $p = 0.001$), and auditors' *trust in specialist* significantly affects auditors' *reliance on specialist* ($t = 5.67$, $p < 0.001$), thus supporting H2c. However, per the moderated mediation analysis, *specialist experience* and the interaction of *communication* and *specialist experience* do not have a significant effect on *trust in specialist* ($t = 0.22$, $p = 0.829$ and $t = 0.15$, $p = 0.883$, respectively) or *reliance on specialist* ($t = 0.75$, $p = 0.458$ and $t = 0.82$, $p = 0.419$, respectively) in the model, thus failing to support H2d and H2e.

FIGURE 6

Statistical Diagram of Mediation Analysis for H2

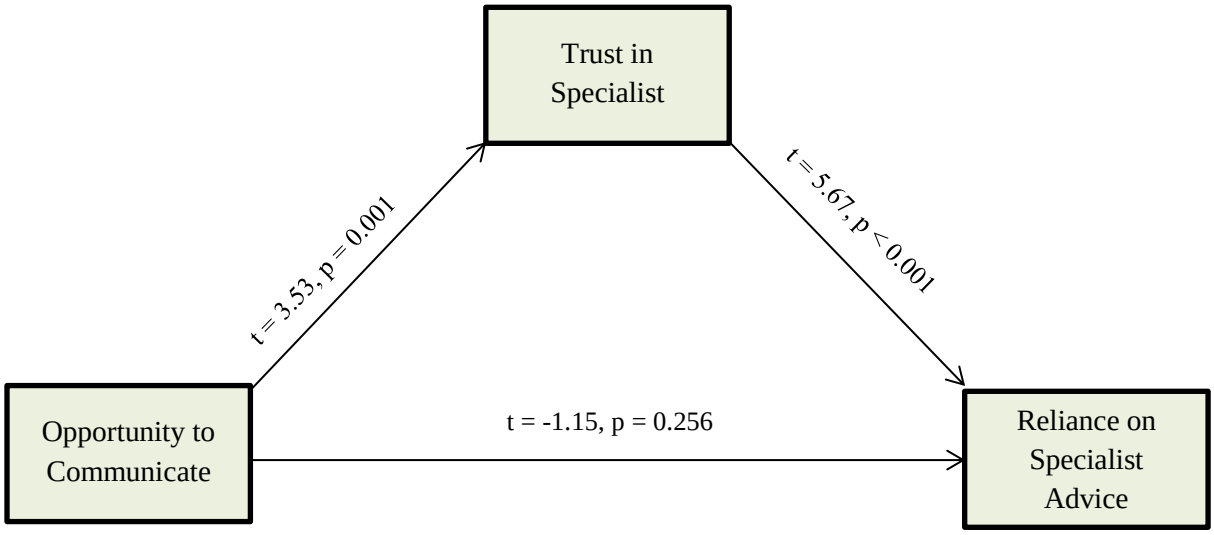


TABLE 4
Mediation: Effect of Communication[a] on Reliance on Specialist[b] through Trust in Specialist[c] (H2)

Panel A: Regression Model of Trust in Specialist

	Coefficient	SE	t-stat	p-value[d]	
Communication	1.88	0.53	3.53	0.001	**

Panel B: Regression Model of Reliance on Specialist

	Coefficient	SE	t-stat	p-value	
Communication	-0.08	0.07	-1.15	0.256	
Trust in Specialist	0.10	0.02	5.67	<.001	***

Panel C: Indirect Effect of Communication[e]

Mediator	Effect	SE	LLCI	ULCI
Trust in Specialist	0.18	0.06	0.082	0.329

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

[c] *Trust in Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

[d] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

[e] Panel C reports the 95% bias-corrected bootstrap confidence interval based on 5,000 bootstrap samples for the indirect effect of *Communication* on *Reliance on Specialist* through *Trust in Specialist* based on the technique described in Hayes (2013).

FIGURE 7

Statistical Diagram of Moderated Mediation Analysis for H2

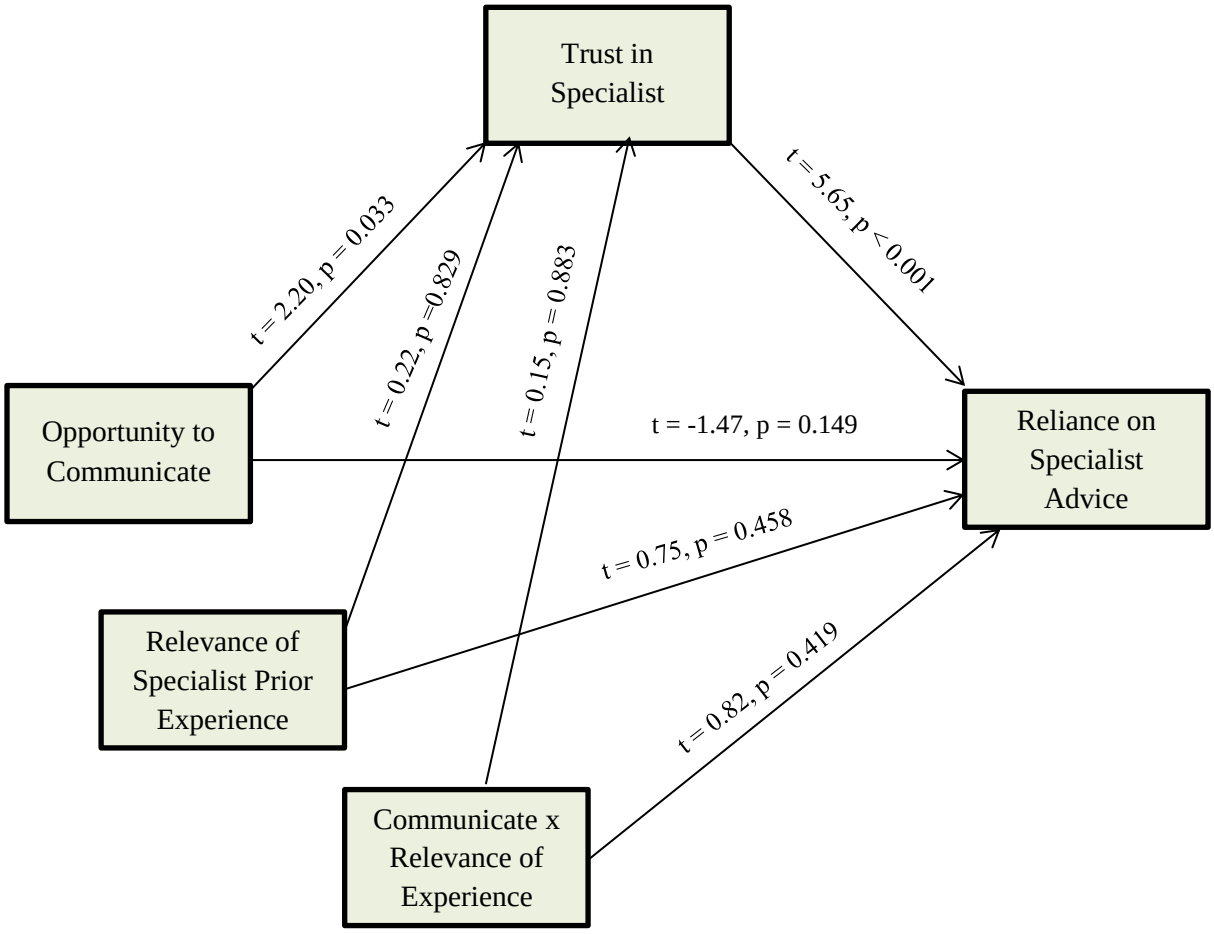


TABLE 5

Moderated Mediation: Effect of Communication[a] on Reliance on Specialist[b] through Trust in Specialist[c], moderated by Specialist Experience[d] (H2)

Panel A: Regression Model of Trust in Specialist

	Coefficient	SE	t-stat	p-value[e]	
Communication	1.77	0.80	2.20	0.033	**
Specialist Experience	0.17	0.77	0.22	0.829	
*Communication*Specialist Experience*	0.16	1.09	0.15	0.883	

Panel B: Regression Model of Reliance on Specialist

	Coefficient	SE	t-stat	p-value	
Communication	-0.14	0.10	-1.47	0.149	
Specialist Experience	0.06	0.09	0.75	0.458	
Trust in Specialist	0.10	0.02	5.65	<.001	***
*Communication*Specialist Experience*	0.10	0.12	0.82	0.419	

Panel C: Conditional Direct Effects[f]

Specialist Experience	Effect	SE	t-stat	p-value
Matched	-0.04	0.09	-0.45	0.657
Mismatched	-0.14	0.10	-1.47	0.149

Panel D: Conditional Indirect Effects[g]

Specialist Experience	Effect	SE	LLCI	ULCI
Matched	0.19	0.07	0.057	0.323
Mismatched	0.17	0.10	-0.005	0.385

Panel E: Indirect Effect of Highest Order Product[h]

Mediator	Effect	SE	LLCI	ULCI
Trust in Specialist	0.02	0.11	-0.204	0.229

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

[c] *Trust in Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

[d] Auditors assigned to the matched (mismatched) condition were randomly paired with a specialist who was trained by estimating the number of gumballs (weight of corn) prior to the partnered compensation rounds.

[e] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

[f] Panel C presents the direct effect of *Communication* on *Reliance on Specialist* conditioned on *Specialist Experience*.

[g] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the indirect effects of *Communication* through *Trust in Specialist* on *Reliance on Specialist* conditioned on *Specialist Experience*.

[h] Panel E reports the 95% bias-corrected bootstrap confidence interval based on 5,000 bootstrap samples for the indirect effect of the highest order product. The moderator, *Specialist Experience*, is dichotomous; thus, this is a test of equality of the conditional indirect effects in the two groups (Hayes 2013).

Supplemental Mediation Analyses

To determine whether *communication* affects *trust in specialist* due to the relevance of specialists' expertise and/or a social bond, I conduct two parallel mediation analyses (one for each *specialist experience* condition) that evaluate the indirect effect of *communication* on *trust in specialist* through both *perceived specialist expertise* and *bond with specialist* considered simultaneously as mediators. The measure for *bond with specialist* was obtained from the post-experimental questionnaire.[21]

Figure 8, Panel A depicts the statistical diagram and Table 6 provides detailed results of the parallel mediation analysis for the matched condition. Results show that, when specialists have matched experience, *communication* significantly affects auditors' *perceived specialist expertise* ($t = 2.38$, $p = 0.025$) and *bond with specialist* ($t = 4.53$, $p < .001$), but only *perceived specialist expertise* significantly affects *trust in specialist* ($t = 3.01$, $p = 0.007$).

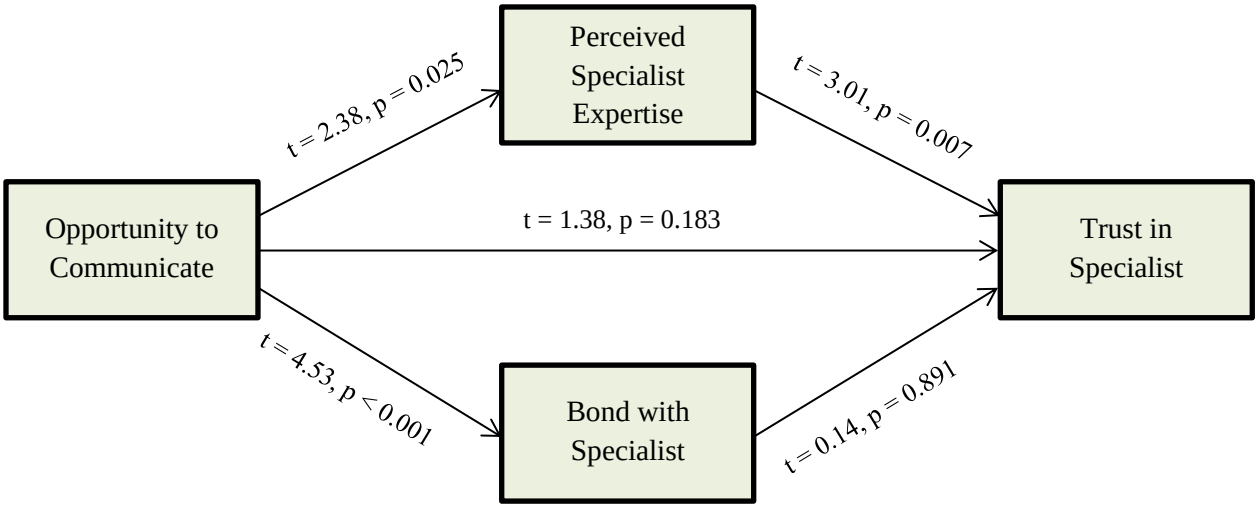
Figure 8, Panel B depicts the statistical diagram and Table 7 provides detailed results of the parallel mediation analysis for the mismatched condition. Results show that, when specialists are mismatched, *communication* only has a significant effect on *bond with specialist* ($t = 6.84$, $p < .001$), not *perceived specialist expertise* ($t = 1.59$, $p = 0.128$). Furthermore, *trust in specialist* is not significantly affected by *communication* ($t = 1.56$, $p = 0.135$), *perceived specialist expertise* ($t = 0.83$, $p = 0.418$), or *bond with specialist* ($t = -0.83$, $p = 0.417$).

[21] *Bond with specialist* was determined by the post-experimental question, "I developed a bond with my partner", which was rated on a seven-point Likert scale.

FIGURE 8

Parallel Mediation Analysis for Effects on Auditor Trust in Specialist

Panel A: Matched Condition



Panel B: Mismatched Condition

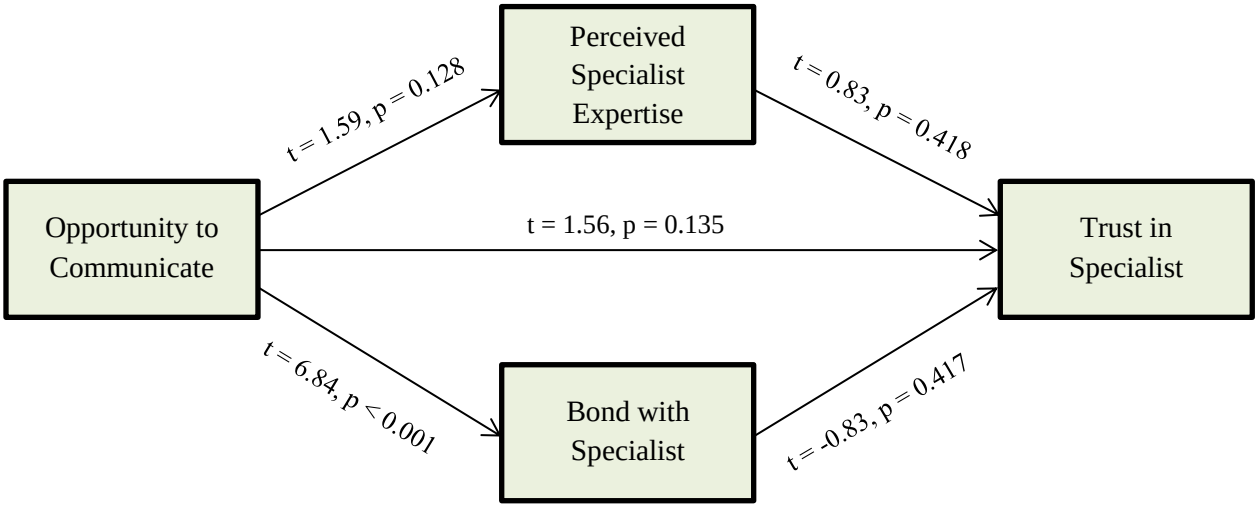


TABLE 6
Parallel Mediation: Effect of Communication[a] on Trust in Specialist[b] through Perceived Specialist Expertise[c] and Bond with Specialist[d] (*Matched Condition*)[e]

Panel A: Regression Model of Perceived Specialist Expertise

	Coefficient	SE	t-stat	p-value[f]	
Communication	1.44	0.60	2.38	0.025	**

Panel B: Regression Model of Bond with Specialist

	Coefficient	SE	t-stat	p-value	
Communication	2.77	0.61	4.53	<.001	***

Panel C: Regression Model of Trust in Specialist

	Coefficient	SE	t-stat	p-value	
Communication	1.01	0.73	1.38	0.183	
Perceived Specialist Expertise	0.59	0.20	3.01	0.007	***
Bond with Specialist	0.03	0.19	0.14	0.891	

Panel D: Indirect Effects of Communication[g]

Path	Effect	SE	LLCI	ULCI
Total	0.92	0.64	-0.218	2.312
Ind1	0.85	0.41	0.194	1.897
Ind2	0.07	0.65	-1.350	1.226

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Trust in Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

[c] *Perceived Specialist Expertise* was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

[d] *Bond with Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their development of a bond with their partner using a seven-point Likert scale.

[e] Auditors assigned to the matched condition were randomly paired with a specialist who was trained by estimating the number of gumballs prior to the partnered compensation rounds.

[f] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

[g] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the indirect effects based on the technique described in Hayes (2013). Total represents the total indirect effect of *Communication* on *Trust in Specialist* through all specific indirect paths. Ind1 represents the indirect path from *Communication* to *Perceived Specialist Expertise* to *Trust in Specialist*, and Ind2 represents the indirect path from *Communication* to *Bond with Specialist* to *Trust in Specialist*.

TABLE 7
Parallel Mediation: Effect of Communication[a] on Trust in Specialist[b] through Perceived Specialist Expertise[c] and Bond with Specialist[d] (*Mismatched Condition*)[e]

Panel A: Regression Model of Perceived Specialist Expertise

	Coefficient	SE	t-stat	p-value[f]
Communication	0.78	0.49	1.59	0.128

Panel B: Regression Model of Bond with Specialist

	Coefficient	SE	t-stat	p-value	
Communication	3.75	0.55	6.84	<.001	***

Panel C: Regression Model of Trust in Specialist

	Coefficient	SE	t-stat	p-value
Communication	2.72	1.74	1.56	0.135
Perceived Specialist Expertise	0.37	0.44	0.83	0.418
Bond with Specialist	-0.33	0.40	-0.83	0.417

Panel D: Indirect Effects of Communication[g]

Path	Effect	SE	LLCI	ULCI
Total	-0.95	1.47	-3.843	1.955
Ind1	0.29	0.48	-0.296	1.860
Ind2	-1.23	1.51	-4.228	1.694

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Trust in Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their overall trust in their partner using a seven-point Likert scale.

[c] *Perceived Specialist Expertise* was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

[d] *Bond with Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their development of a bond with their partner using a seven-point Likert scale.

[e] Auditors assigned to the mismatched condition were randomly paired with a specialist who was trained by estimating the weight of corn prior to the partnered compensation rounds.

[f] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

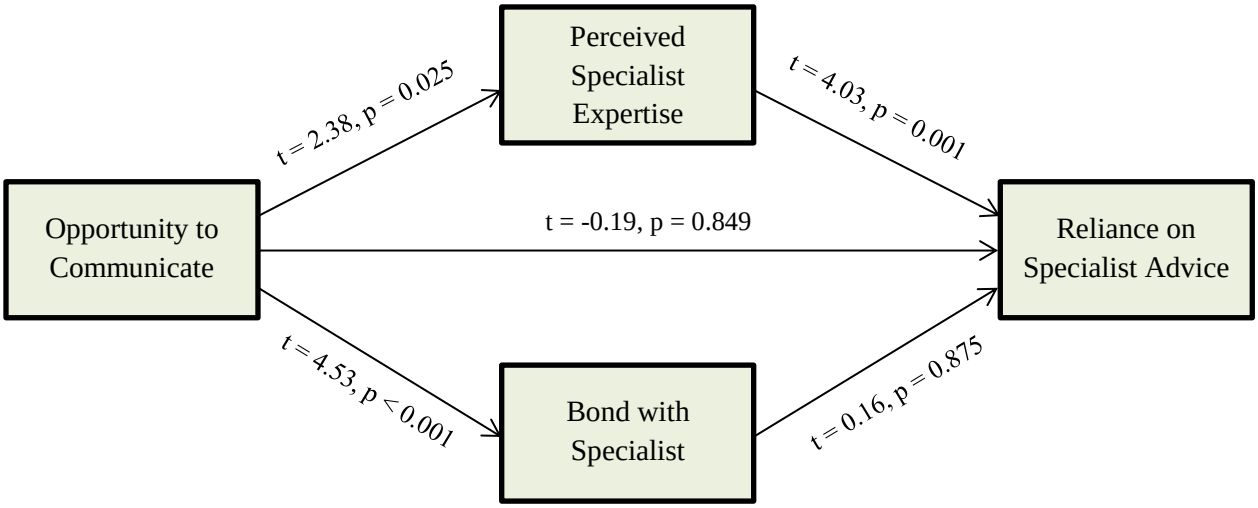
[g] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the indirect effects based on the technique described in Hayes (2013). Total represents the total indirect effect of *Communication* on *Trust in Specialist* through all specific indirect paths. Ind1 represents the indirect path from *Communication* to *Perceived Specialist Expertise* to *Trust in Specialist*, and Ind2 represents the indirect path from *Communication* to *Bond with Specialist* to *Trust in Specialist*.

As an additional test, I conduct the same parallel mediation analyses with *reliance on specialist* as the dependent variable. Figure 9, Panel A depicts the statistical diagram and Table 8 provides detailed results of the parallel mediation analysis for the matched condition. Results show that, when specialists have matched experience, *communication* significantly affects auditors' *perceived specialist expertise* ($t = 2.38$, $p = 0.025$) and *bond with specialist* ($t = 4.53$, $p < .001$), but only *perceived specialist expertise* significantly affects *reliance on specialist* ($t = 4.03$, $p = 0.001$). Figure 9, Panel B depicts the statistical diagram and Table 9 provides detailed results of the parallel mediation analysis for the mismatched condition. Results show that, when specialists are mismatched, *communication* only has a significant effect on *bond with specialist* ($t = 6.84$, $p < .001$), not *perceived specialist expertise* ($t = 1.59$, $p = 0.128$). However, only *perceived specialist expertise* has a significant effect on *reliance on specialist* ($t = 2.16$, $p = 0.045$). These findings suggest that auditors generally base their reliance decisions on the relevance of specialists' experience rather than any social bond that develops through communication.

FIGURE 9

Parallel Mediation Analysis for Effects on Auditor Reliance on Specialist

Panel A: Matched Condition



Panel B: Mismatched Condition

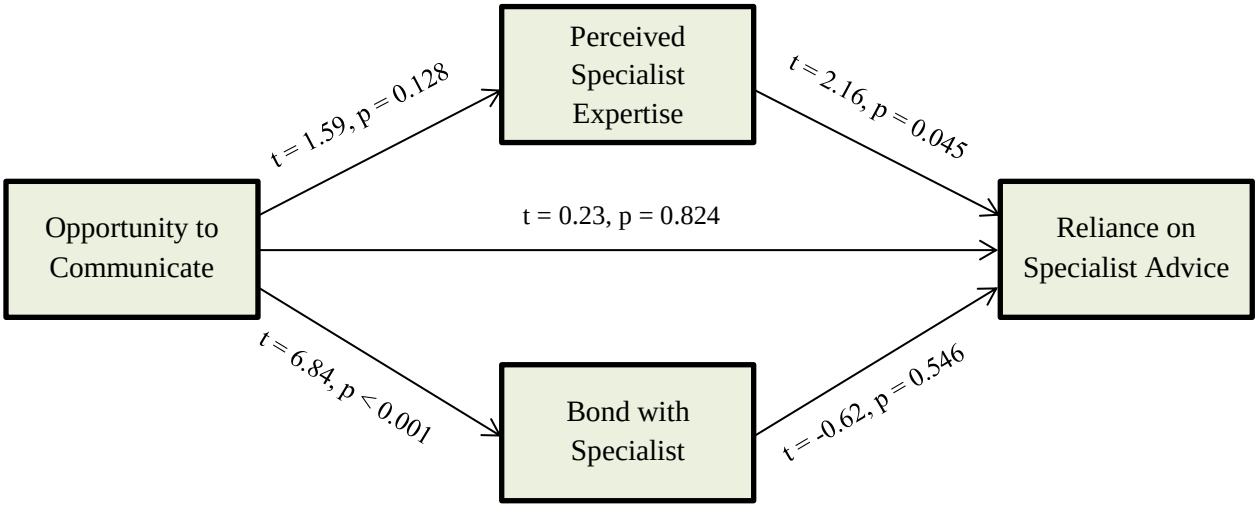


TABLE 8
Parallel Mediation: Effect of Communication[a] on Reliance on Specialist[b] through Perceived Specialist Expertise[c] and Bond with Specialist[d] (*Matched Condition*)[e]

Panel A: Regression Model of Perceived Specialist Expertise

	Coefficient	SE	t-stat	p-value[f]	
Communication	1.44	0.60	2.38	0.025	**

Panel B: Regression Model of Bond with Specialist

	Coefficient	SE	t-stat	p-value	
Communication	2.77	0.61	4.53	<.001	***

Panel C: Regression Model of Reliance on Specialist

	Coefficient	SE	t-stat	p-value	
Communication	-0.02	0.10	-0.19	0.849	
Perceived Specialist Expertise	0.11	0.03	4.03	0.001	***
Bond with Specialist	0.00	0.03	0.16	0.875	

Panel D: Indirect Effects of Communication[g]

Path	Effect	SE	LLCI	ULCI
Total	0.16	0.10	-0.023	0.387
Ind1	0.15	0.08	0.027	0.338
Ind2	0.01	0.10	-0.170	0.216

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

[c] *Perceived Specialist Expertise* was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

[d] *Bond with Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their development of a bond with their partner using a seven-point Likert scale.

[e] Auditors assigned to the matched condition were randomly paired with a specialist who was trained by estimating the number of gumballs prior to the partnered compensation rounds.

[f] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

[g] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the indirect effects based on the technique described in Hayes (2013). Total represents the total indirect effect of *Communication* on *Reliance on Specialist* through all specific indirect paths. Ind1 represents the indirect path from *Communication* to *Perceived Specialist Expertise* to *Reliance on Specialist*, and Ind2 represents the indirect path from *Communication* to *Bond with Specialist* to *Reliance on Specialist*.

TABLE 9
Parallel Mediation: Effect of Communication[a] on Reliance on Specialist[b] through Perceived Specialist Expertise[c] and Bond with Specialist[d] (*Mismatched Condition*)[e]

Panel A: Regression Model of Perceived Specialist Expertise

	Coefficient	SE	t-stat	p-value[f]	
Communication	0.78	0.49	1.59	0.128	

Panel B: Regression Model of Bond with Specialist

	Coefficient	SE	t-stat	p-value	
Communication	3.75	0.55	6.84	<.001	***

Panel C: Regression Model of Reliance on Specialist

	Coefficient	SE	t-stat	p-value	
Communication	0.05	0.23	0.23	0.824	
Perceived Specialist Expertise	0.13	0.06	2.16	0.045	**
Bond with Specialist	-0.03	0.05	-0.62	0.546	

Panel D: Indirect Effects of Communication[g]

Path	Effect	SE	LLCI	ULCI
Total	-0.02	0.15	-0.298	0.280
Ind1	0.10	0.08	-0.004	0.338
Ind2	-0.12	0.15	-0.398	0.180

[a] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[b] *Reliance on specialists* = the proportion of the distance between the auditor's initial guess and the specialist's estimate that the auditor's final guess adjusts.

[c] *Perceived Specialist Expertise* was obtained from the post-experimental questionnaire. Auditors assessed their partner's relevant expertise to complete the estimation task using a seven-point Likert scale.

[d] *Bond with Specialist* was obtained from the post-experimental questionnaire. Auditors assessed their development of a bond with their partner using a seven-point Likert scale.

[e] Auditors assigned to the mismatched condition were randomly paired with a specialist who was trained by estimating the weight of corn prior to the partnered compensation rounds.

[f] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

[g] Panel D reports the 95% bias-corrected bootstrap confidence intervals based on 5,000 bootstrap samples for the indirect effects based on the technique described in Hayes (2013). Total represents the total indirect effect of *Communication* on *Reliance on Specialist* through all specific indirect paths. Ind1 represents the indirect path from *Communication* to *Perceived Specialist Expertise* to *Reliance on Specialist*, and Ind2 represents the indirect path from *Communication* to *Bond with Specialist* to *Reliance on Specialist*.

Tests of H3

H3 predicts that *time pressure* will have a more positive effect on auditors' *reliance on specialists* when specialists have less relevant, or mismatched, experience compared to more relevant, or matched, experience due to a potential ceiling effect in the matched condition. Table 1, Panel C describes the means and standard deviations for key variables for the two-way interaction of *specialist experience* and *time pressure*, and the respective means for *reliance on specialist* are plotted in Figure 10. Results suggest a main effect of *specialist experience* such that auditors rely more heavily on specialists' advice in the matched versus mismatched condition regardless of *time pressure*. When specialists have matched experience, auditor reliance is 62.18% and 61.53% in low and high time pressure conditions, respectively. On the other hand, when specialists have mismatched experience, auditor reliance drops to 45.49% and 49.97% in low and high time pressure conditions, respectively. This pattern of means is consistent with the predicted trend.

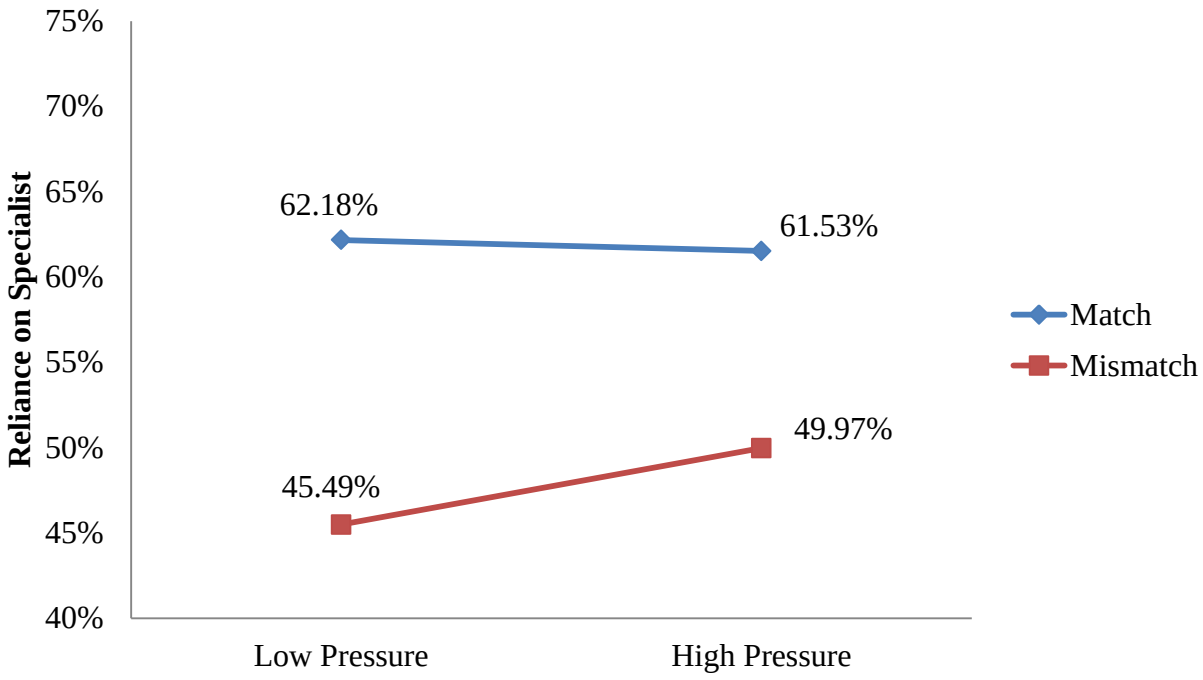
To formally test H3, I performed a planned contrast of cell means[22] shown in Table 2, Panel C. Due to the expected shape, I assigned a contrast weight of -3 for Mismatched, Low Pressure; -1 for Mismatched, High Pressure; +2 for Matched, Low Pressure; and +2 for Matched, High Pressure. Results in Table 2, Panel C demonstrate a significant interaction between *specialist experience* and *time pressure* regarding auditors' *reliance on specialists* ($F = 5.61$, $p = 0.020$), thus supporting H3. This is consistent with the pairwise comparisons for *specialist experience* under low and high *time pressure* in Table 2, Panel B, which indicate that the relevance of specialists' prior experience (matched versus mismatched) only significantly affects auditors' reliance on specialists when there is low time pressure ($F = 4.08$, $p = 0.047$), not when

[22] I predict an ordinal interaction between *specialist experience* and *time pressure*, making the ANCOVA model an inappropriate method of analysis (Buckless and Ravenscroft 1990).

there is high time pressure ($F = 1.46$, $p = 0.231$). Because auditors often face time constraints, this finding has important practical implications for audit quality.

FIGURE 10

Effects of Specialist Experience and Time Pressure on Reliance on Specialist



Additional Analysis

I also evaluate the effect of *specialist experience* and *communication* on auditors' estimation accuracy by using *estimation error* as the dependent variable, which is measured as the percentage difference between the auditor's final estimate and the correct amount.[23] *Estimation error* is averaged over all available rounds for each participant, resulting in one observation per participant.[24] The means of *estimation error* for the two-way interaction of *specialist experience* and *communication* are shown in Table 1, Panel B as well as Figure 11, and Table 10 includes the ANOVA model with *estimation error* as the dependent variable and *specialist experience* and *communication* as the independent variables. Results in Table 10 demonstrate a significant main effect of *specialist experience* ($F = 96.44$, $p < 0.001$), indicating that auditors are more accurate in the matched versus mismatched condition, as well as a significant interaction effect between *specialist experience* and *communication* ($F = 3.92$, $p = 0.054$). Per Figure 11, auditors in the matched condition are more accurate when able to communicate versus not, which is not surprising. Interestingly, though, auditors in the mismatched condition are less accurate when able to communicate versus not, which has important practical implications.

[23] E*stimation error* = (auditor's final estimate - correct amount) / correct amount.
[24] Results for the ANOVA model in Table10 are statistically unaffected by including *time pressure.*

FIGURE 11

Effects of Specialist Experience and Communication on Final Estimation Error

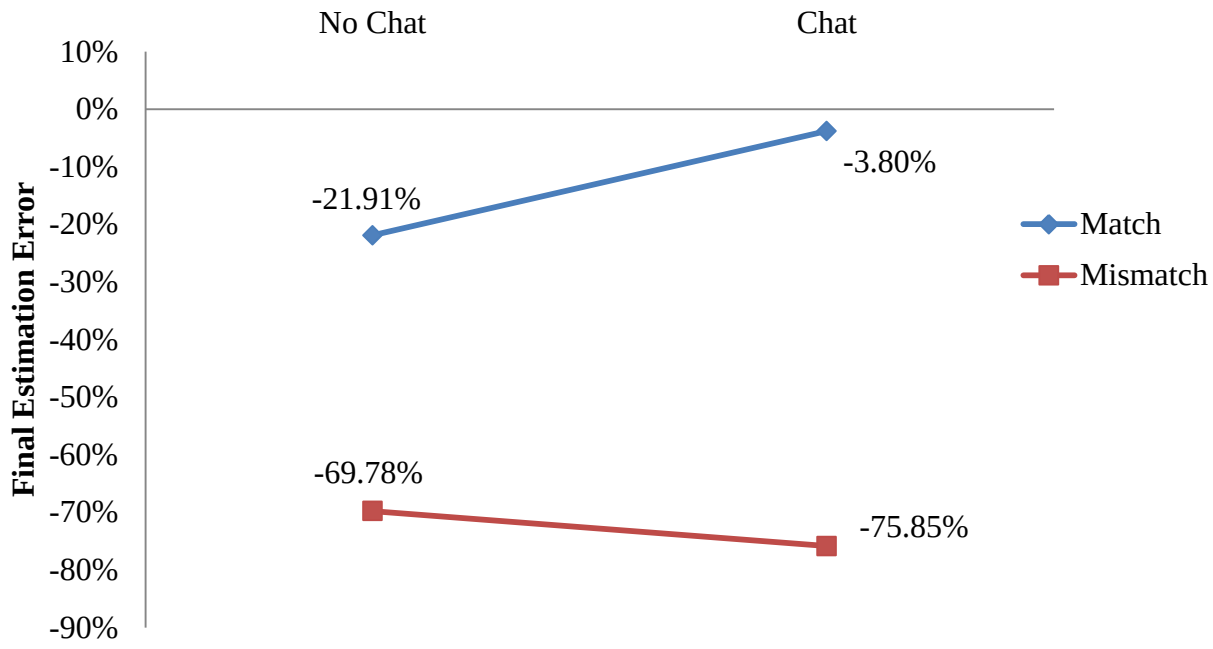


TABLE 10
Effects of Specialist Experience[a] and Communication[b]
on Final Estimation Error[c]

Source[d]	num df	denom df	F-test	p-value[e]	
Specialist Experience	1	44	96.44	<.001	***
Communication	1	44	0.97	0.330	
*Specialist Experience*Communication*	1	44	3.92	0.054	*

[a] Auditors assigned to the matched (mismatched) condition were randomly paired with a specialist who was trained by estimating the number of gumballs (weight of corn) prior to the partnered compensation rounds.

[b] Auditors assigned to the chat (no chat) condition were (not) able to communicate with their partner through an online z-Tree (Fischbacher 2007) chat box during the compensation rounds.

[c] *Final estimation error* = the percentage difference between the auditor's final estimate and the correct amount.

[d] *Time pressure* was collapsed for additional analysis. Including *time pressure* in the model does not significantly alter any results.

[e] *,**,*** indicate significance at the 0.10, 0.05, 0.01 levels, respectively.

VI. CONCLUSION

The purpose of this study is to investigate if and how auditors' reliance on specialists' valuation of complex estimates is affected by specialists' expertise, auditor-specialist communication, and time pressure. I explore this question with a 2 x 2 x 2 mixed experimental design by manipulating the relevance of specialists' prior experience for the current valuation task (matched versus mismatched), the opportunity for pairs to communicate (chat versus no chat), and the level of time pressure (high versus low). In the experiment, students assigned to the role of auditor estimate the number of gumballs in a container for 20 rounds. Each round, before making their final estimate, they receive advice from their partner, a student assigned to the role of specialist who received prior estimation training.

In my first set of hypotheses, I evaluate the relationship between the relevance of specialists' prior experience and auditors' reliance on specialists' work. I predict and find that auditors rely more heavily on advice from specialists with more relevant prior experience compared to those with less relevant prior experience. By conducting a serial mediation analysis, I determine that the relevance of specialists' prior experience affects auditors' perception of specialists' expertise, which influences auditors' trust in specialists, ultimately affecting auditors' reliance in specialists' advice.

In my second set of hypotheses, I investigate auditor-specialist communication. I expect the opportunity for auditors and specialists to communicate, moderated by the relevance of specialists' experience, to influence auditors' reliance on specialists' advice. I find that both the opportunity to communicate and the relevance of specialists' experience have significant main

effects on auditors' reliance on specialists, although I fail to find a significant interaction between the two. However, a moderated mediation analysis indicates that the opportunity to communicate increases auditors' trust in specialists, which increases their reliance on specialists' advice. Upon further examination, I find that, in the matched condition, communication causes auditors to perceive specialists as more expert as well as increase their bond with the specialist, but it is the perceived expertise that ultimately increases auditors' reliance on specialists, not the bond. In the mismatched condition, communication only influences auditors' bond with specialists, not the perceived specialist expertise, and it is perceived expertise that solely influences auditors' reliance on specialists.

My final hypothesis addresses time pressure. By performing a planned contrast of cell means, I demonstrate a significant interaction between the relevance of specialists' prior experience and time pressure. Results are consistent with the predicted trend that auditors' reliance on specialists increases as time pressure increases under the mismatched condition, but a ceiling effect is in place under the matched condition, causing reliance to remain significantly unaltered by an increase in time pressure. After examining the simple effects using pairwise comparisons, I find a significant difference in auditor reliance based on the relevance of specialists' prior experience in cases of low time pressure, but there is no significant difference in auditor reliance based on the relevance of specialists' prior experience when high time pressure is present. This finding has important practical implications for audit quality because auditors often face strict time deadlines, particularly during busy season.

As an additional analysis, I examine the interaction between the relevance of specialists' prior experience and auditor-specialist communication on auditors' actual estimation accuracy. Results show that, although allowing auditor-specialist pairs to communicate improves

estimation accuracy in the matched condition, the opportunity to communicate actually harms estimation accuracy in the mismatched condition. This finding indicates that the push to increase auditor-specialist communication may have unintended consequences on audit quality.

This paper makes several contributions to prior literature. First, auditors' use of specialists, particularly regarding fair value measurements, is an important topic that has generally been addressed qualitatively thus far. My study takes the next step forward by focusing on several issues identified from the qualitative studies and examining them quantitatively. By investigating auditors' reliance on advice received specifically from specialists, I extend both the auditor advice-taking and expertise research streams. I also build on prior auditor communication literature by investigating the effects of auditor-specialist interactions and by examining the underlying factors of trust, perception of expertise, and social bonding. Furthermore, my study has several methodological advantages that contribute to prior research. Because I employ an experimental economics setting, I am able to manipulate specialists' prior experience, which would otherwise have to be measured, and the interactive setting I use enables me to smoothly implement my communication variable.

This study also has important implications for practitioners and standard-setters. In response to problems regarding the auditor-specialist dynamic, the PCAOB is currently working to amend the auditing guidance regarding auditors' use of specialists. Due to my experimental approach, I am able to assess the impact of such amendments ex ante. In doing so, I find that the PCAOB's recommendation for increased communication between auditors and specialists may not always have a desirable outcome. When specialists have mismatched experience, auditor accuracy is actually better when auditors and specialists do not communicate. My results also

indicate that, when a specialist is mismatched, increased time pressure leads to increased auditor reliance, which could be harmful to audit quality.

Because specialists' work factors into the audit report, which is then referenced by investors, regulators, creditors, and other users of the financial statements, it is essential to evaluate how auditors utilize specialists' work when making audit judgments and decisions. Regulators and practitioners have noted that auditors appear to over- and under-rely on specialists' work, both of which result in lower audit quality. Regulators, practitioners, and academics all identified serious concerns regarding each of the factors considered in this study, making this a timely and important topic to explore.

LIST OF REFERENCES

LIST OF REFERENCES

American Institute of Certified Public Accountants (AICPA). 1972. *AS 1015: Due Professional Care in the Performance of Work.* New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA). 1989. *AS 2501: Auditing Accounting Estimates.* New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA). 1994. *AS 1210: Using the Work of a Specialist.* New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA). 2003. *AS 2502: Auditing Fair Value Measurements and Disclosures.* New York, NY: AICPA.

American Institute of Certified Public Accountants (AICPA). 2006. *AS 1201: Supervision of the Audit Engagement.* New York, NY: AICPA.

Arnold, V., S. G. Sutton, S. C. Hayne, and C. A. P. Smith. 2000. Group decision making: The impact of opportunity-cost time pressure and group support systems. *Behavioral Research in Accounting* 12: 69-96.

Baron, R. M., and D. A. Kenny. 1986. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51.6: 1173-1182.

Bauer, T., and C. Estep. 2014. The IT auditor function on financial statement and integrated audits: Description of practice and avenues for future research. Working Paper. University of Illinois at Urbana-Champaign and Emory University.

Bedard, J. C., and A. M. Wright. 1994. The functionality of decision heuristics: Reliance on prior audit adjustments in evidential planning. *Behavioral Research in Accounting* 6: 62-89.

Bonaccio, S., and R. S. Dalal. 2006. Advice taking and decision-making: An integrative literature review, and implications for the organizational sciences. *Organizational Behavior and Human Decision Processes* 101.2: 127-151.

Bonner, S. E., and B. L. Lewis. 1990. Determinants of auditor expertise. *Journal of Accounting Research* 28: 1-20.

Boritz, J. E., L. A. Robinson, C. Wong, and N. Kochetova-Kozloski. 2014. Auditors' and specialists' views about the use of specialists during an audit. Working Paper. University of Waterloo and Saint Mary's University.

Bowlin, K. O., J. Hales, and S. J. Kachelmeier. 2009. Experimental evidence of how prior experience as an auditor influences managers' strategic reporting decisions. *Review of Accounting Studies* 14.1: 63-87.

Bowlin, K. O., J. L. Hobson, and M. D. Piercey. 2015. The effects of auditor rotation, professional skepticism, and interactions with managers on audit quality. *The Accounting Review* 90.4: 1363-1393.

Bratten, B., L. M. Gaynor, L. McDaniel, N. R. Montague, and G. E. Sierra. 2013. The audit of fair values and other estimates: The effects of underlying environmental, task, and auditor-specific factors. *Auditing: A Journal of Practice & Theory* 32: 7-44.

Buckless, F. A. and S.P. Ravenscroft. 1990. Contrast Coding: A Refinement of ANOVA in Behavioral Analysis. *The Accounting Review* 65.4: 933-945.

Cannon, N., and J. C. Bedard. 2017. Auditing challenging fair value measurements: Evidence from the field. *The Accounting Review* 92.4: 81-114.

Center for Audit Quality (CAQ). 2011. *Observations on the Evolving Role of the Auditor: A Summary of Stakeholder Discussions.* Washington, DC: CAQ.

Choo, F. 1995. Auditors' judgment performance under stress: A test of the predicted relationship by three theoretical models. *Journal of Accounting, Auditing & Finance* 10.3: 611-641.

DeZoort, F. T. 1998. Time pressure research in auditing: Implications for practice. *The Auditor's Report* 22.1: 11-14.

DeZoort, F. T., and A. T. Lord. 1997. A review and synthesis of pressure effects research in accounting. *Journal of Accounting Literature* 16: 28-86.

Easterbrook, J. A. 1959. The effect of emotion on cue utilization and the organization of behavior. *Psychological Review* 66.3: 183-201.

Financial Accounting Standards Board (FASB). 2011. *Fair Value Measurement (Topic 820): Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs.* Accounting Standards Update No. 2011-04. Norwalk, CT: FASB.

Fischbacher, U. 2007. Z-Tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics* 10.2: 171-178.

Friedman, D., and S. Sunder. 1994. *Experimental methods: A primer for economists*. Cambridge, U.K.: Cambridge University Press.

Giddens, A. 1990. *The Consequences of Modernity*. Stanford, Calif: Stanford University Press.

Giddens, A. 1991. *Modernity and Self-identity: Self and Society in the Late Modern Age*. Stanford, Calif: Stanford University Press.

Glover, S. M. 1997. The influence of time pressure and accountability on auditors' processing of nondiagnostic information. *Journal of Accounting Research* 35.2: 213-226.

Griffin, J. B. 2014. The effects of uncertainty and disclosure on auditors' fair value materiality decisions. *Journal of Accounting Research* 52.5: 1165-1193.

Griffith, E. E. 2014. The Role of Valuation Specialists in Auditing Complex Estimates. Dissertation. University of Georgia.

Griffith, E. E. 2015. How Do Auditors Use Valuation Specialists When Auditing Fair Values? Working Paper. University of Wisconsin-Madison.

Griffith, E. E., J. S. Hammersley, and K. Kadous. 2015. Audits of complex estimates as verification of management numbers: How institutional pressures shape practice. *Contemporary Accounting Research* 32.3: 833-863.

Hammersley, J. S. 2006. Pattern identification and industry-specialist auditors. *The Accounting Review* 81.2: 309-336.

Harvey, N., and I. Fischer. 1997. Taking advice: Accepting help, improving judgment, and sharing responsibility. *Organizational Behavior and Human Decision Processes* 70.2: 117-133.

Harvey, N., and C. Harries. 2004. Effects of judges' forecasting on their later combination of forecasts for the same outcomes. *International Journal of Forecasting* 20.3: 391-409.

Hayes, A. F. 2013. *Introduction to Mediation, Moderation, and Conditional Process Analysis*. New York, NY: The Guilford Press.

Hurtt, R. K. 2010. Development of a scale to measure professional skepticism. *Auditing: A Journal of Practice & Theory* 29.1: 149-171.

Kachelmeier, S. J., and R. R. King. 2002. Using laboratory experiments to evaluate accounting policy issues. *Accounting Horizons* 16.3: 219-232.

Kachelmeier, S. J., and M. G. Williamson. 2010. Attracting creativity: The initial and aggregate effects of contract selection on creativity-weighted productivity. *The Accounting Review* 85.5: 1669-1692.

Kadous, K., J. Leiby, and M. E. Peecher. 2013. How do auditors weight informal contrary advice? The joint influence of advisor social bond and advice justifiability. *The Accounting Review* 88.6: 2061-2087.

Kadous, K., and Y. D. Zhou. 2015. Prompting Auditors' Intrinsic Motivation Improves Skepticism. Working Paper. Emory University.

Kelley, T., and L. Margheim. 1990. The impact of time budget pressure, personality, and leadership variables on dysfunctional auditor behavior. *Auditing: A Journal of Practice & Theory* 9.2: 21-42.

Krueger, J. L. 2003. Return of the ego—self-referent information as a filter for social prediction: comment on Karniol. *Psychological Review* 110: 585-590.

Libby, R., R. Bloomfield, and M. W. Nelson. 2002. Experimental research in financial accounting. *Accounting, Organizations and Society* 27.8: 775-810.

Low, K. Y., and H. T. Tan. 2011. Does time constraint lead to poorer audit performance? Effects of forewarning of impending time constraints and instructions. *Auditing: A Journal of Practice & Theory* 30.4: 173-190.

McDaniel, L. S. 1990. The effects of time pressure and audit program structure on audit performance. *Journal of Accounting Research 28*: 267-285.

Preacher, K. J., and A. F. Hayes. 2004. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods* 36.4: 717-731.

Public Company Accounting Oversight Board (PCAOB). 2015. *Staff Consultation Paper No. 2015-01, The Auditors' Use of The Work of Specialists.* Washington, DC: PCAOB.

Public Company Accounting Oversight Board (PCAOB). 2017a. *Release No. 2017-002, Proposed Auditing Standard- Auditing Accounting Estimates, Including Fair Value Measurements*. Washington, DC: PCAOB.

Public Company Accounting Oversight Board (PCAOB). 2017b. *Release No. 2017-003, Proposed Amendments to Auditing Standards for Auditors' Use of The Work of Specialists*. Washington, DC: PCAOB.

Selley, D. 1999. *Use of Specialists in Assurance Engagements Use of Specialists in Assurance Engagements*. Toronto, ON: Canadian Accounting and Assurance Reference Service.

Svenson, O., and A. Edland. 1987. Change of preferences under time pressure: Choices and judgements. *Scandinavian Journal of Psychology* 28.4: 322-330.

Spilker, B. C. 1995. The effects of time pressure and knowledge on key word selection behavior in tax research. *The Accounting Review* 70.1: 49-70.

Spilker, B. C., and D. F. Prawitt. 1997. Adaptive responses to time pressure: The effects of experience on tax information search behavior. *Behavioral Research in Accounting* 9: 172-198.

Tversky, A., and D. Kahneman. 1975. Judgment under uncertainty: Heuristics and biases. In D. Wendt & C.Vlek (Eds.), *Utility, probability, and human decision making*. Netherlands: Springer, 141-162.

Wright, A. M., and J. C. Bedard. 2000. Decision processes in audit evidential planning: A multistage investigation. *Auditing: A Journal of Practice & Theory* 19.1: 123-143.

Wright, S., and A. M. Wright. 1997. The effect of industry experience on hypothesis generation and audit planning decisions. *Behavioral Research in Accounting* 9: 273-294.

Yaniv, I. 2004. Receiving other people's advice: influence and benefit. *Organizational Behavior and Human Decision Processes* 93: 1-13.

APPENDIX

APPENDIX A: Instructions to be Read Aloud

Thank you for participating in today's study. This study requires you to work on the computer at your desk, so please refrain from talking throughout the session. All information in the study will remain confidential, and you have the right to withdraw from the study at any time. Today's session is expected to last approximately one hour. For your participation, you will be paid $5 at the end of the session today. In addition, you also have the opportunity to earn up to $100 in prize money based on the decisions you make. You will receive your total payment at the end of the session today.

The study consists of two stages. At the beginning of Stage 1, the computer will randomly assign you to one of two roles, either the Guesser or the Estimator. If you are the Estimator, you will receive 20 rounds of specialized training. In each training round, you will (1) view a picture of a container filled with some material, (2) make an estimate of the amount of the material, and (3) then learn the correct amount. Providing feedback after each round is meant to help you refine your estimation process. If you are the Guesser, you will not participate in the training rounds, so I have provided various games and puzzles in your envelope that you are welcome to use while you wait for the Estimators to finish training. These activities are completely optional, so you do not have to use them, but please remember that talking and cell phones are not allowed during the session. It is also important to mention that the first stage will not affect your winnings, but it does provide training for the second stage, which will determine how much prize money you earn.

Once Stage 1 is complete, Stage 2 will begin, which also has 20 rounds. At the beginning of Stage 2, each Guesser will be partnered with one Estimator. Your task is to work together for all 20 rounds, during which time you will make a series of estimates. In each round, you will be shown a picture of a container filled with a material. Then the Guesser and Estimator will each submit an initial estimate of the amount of material. [CHAT CONDITION ONLY: You will then have the opportunity to chat with your partner on the computer for 30 seconds. Once the chat period ends, the Guesser will then be provided with the Estimator's initial estimate.] [NO CHAT CONDITION ONLY: The Guesser will then be provided with the Estimator's initial estimate.] Finally, the Guesser will submit a final estimate, which ends the round. The Guesser-Estimator pair with the most accurate final estimate wins the round and earns a prize of $10 to be shared equally, so each partner wins $5. In the case of a tie between multiple pairs, the round's winning pair will be randomly determined by the computer. You will learn whether you and your partner won a round after all rounds have been completed.

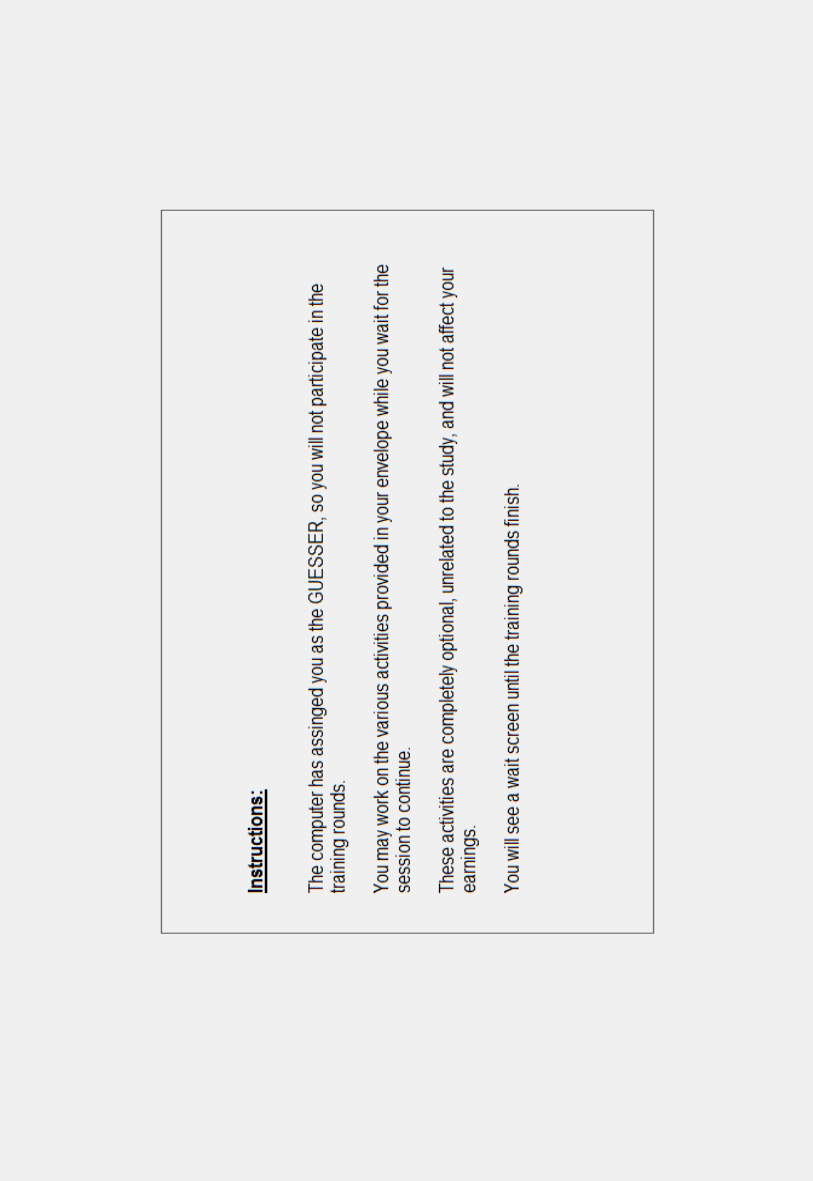
It is also important to note that each round during Stage 2 has a time limit for both the initial and final estimates. The time limit is very important. If you fail to click OK before time runs out, the computer will automatically move on, and you will lose the opportunity to win the round. To ensure you keep track of time, the time remaining will be displayed in the top right corner of your computer screen.

The study concludes once Stage 2 is complete. You will then fill out a brief questionnaire, after which I will pay you the $5 participation fee plus any prize money you earned. You will need to sign a receipt form before leaving.

We are now ready to begin the session. Please remember that talking and cell phones are not allowed at any time.

APPENDIX B: z-Tree Screenshots

(Auditor)



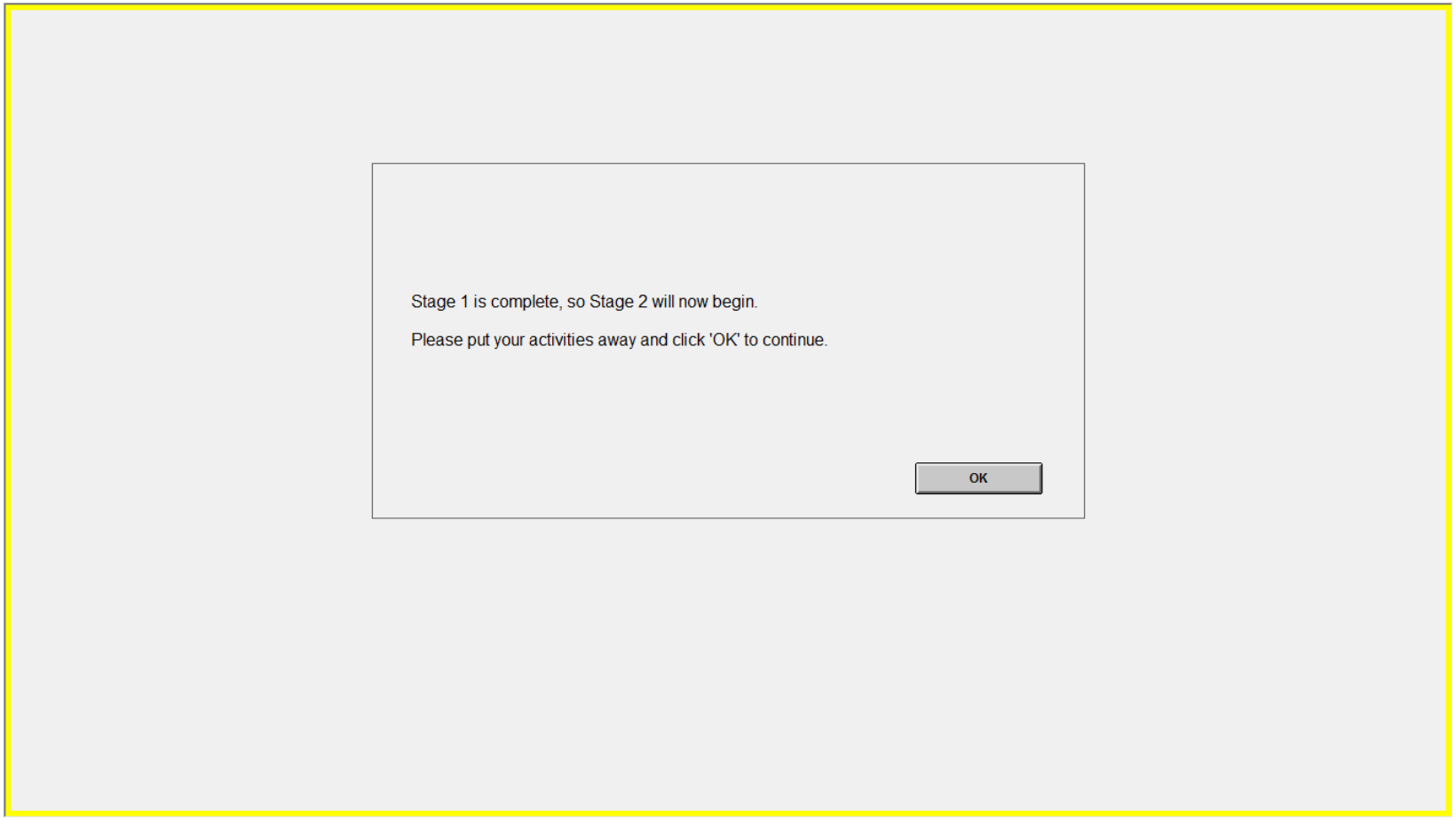
Instructions:

The computer has assinged you as the GUESSER, so you will not participate in the training rounds.

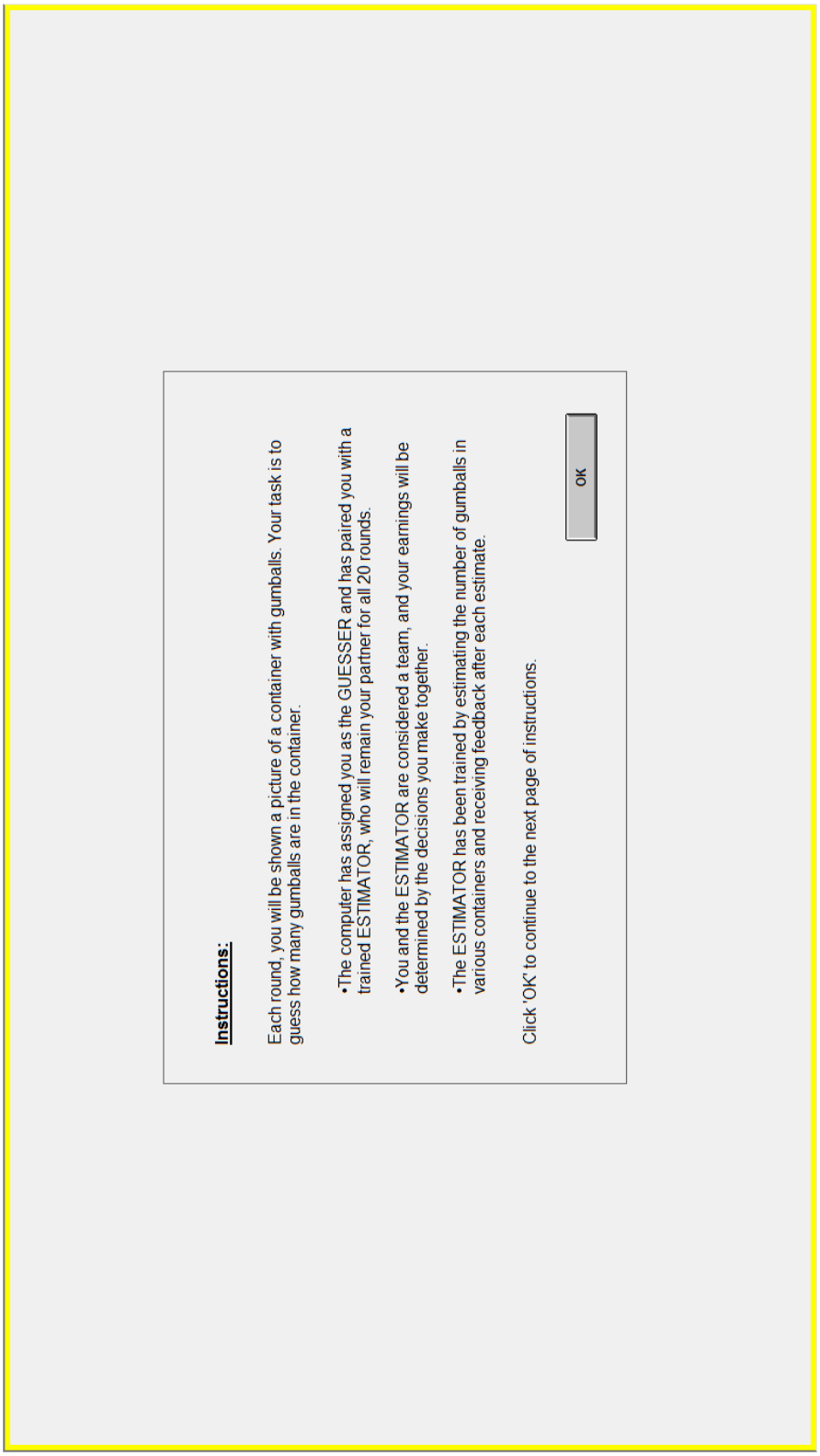
You may work on the various activities provided in your envelope while you wait for the session to continue.

These activities are completely optional, unrelated to the study, and will not affect your earnings.

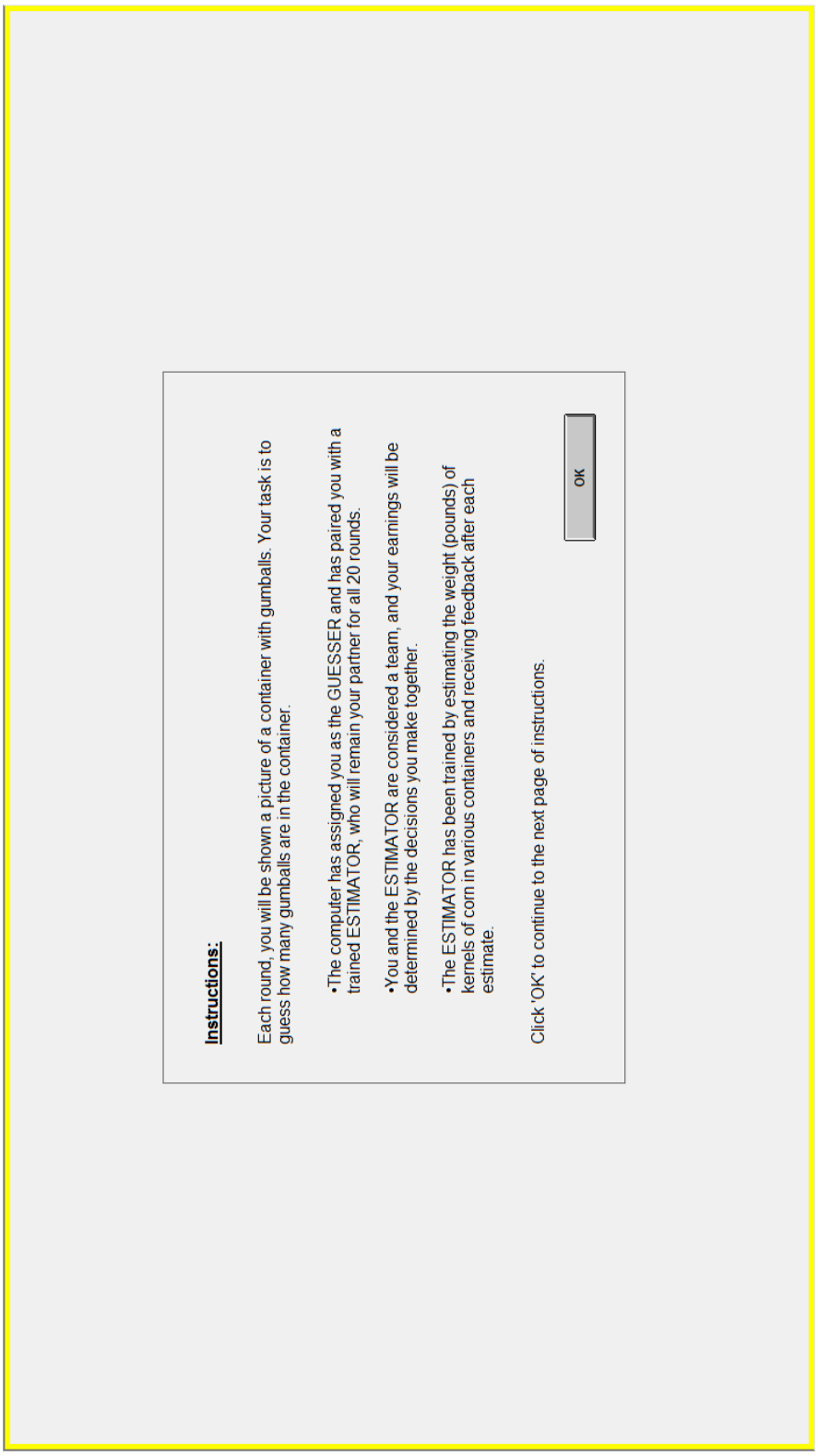
You will see a wait screen until the training rounds finish.


Stage 1 is complete, so Stage 2 will now begin.
Please put your activities away and click 'OK' to continue.
OK

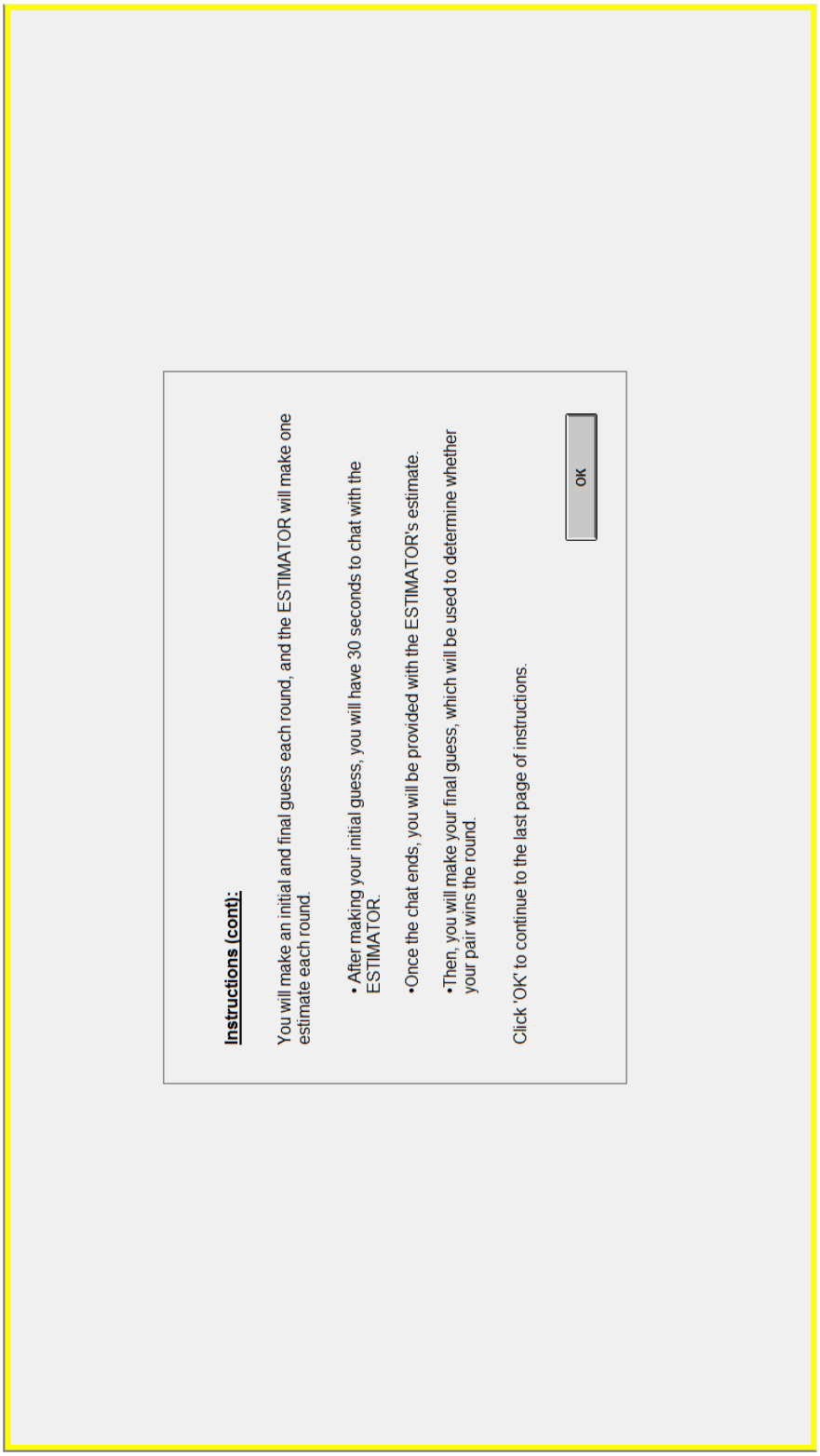
[MATCHED Condition]



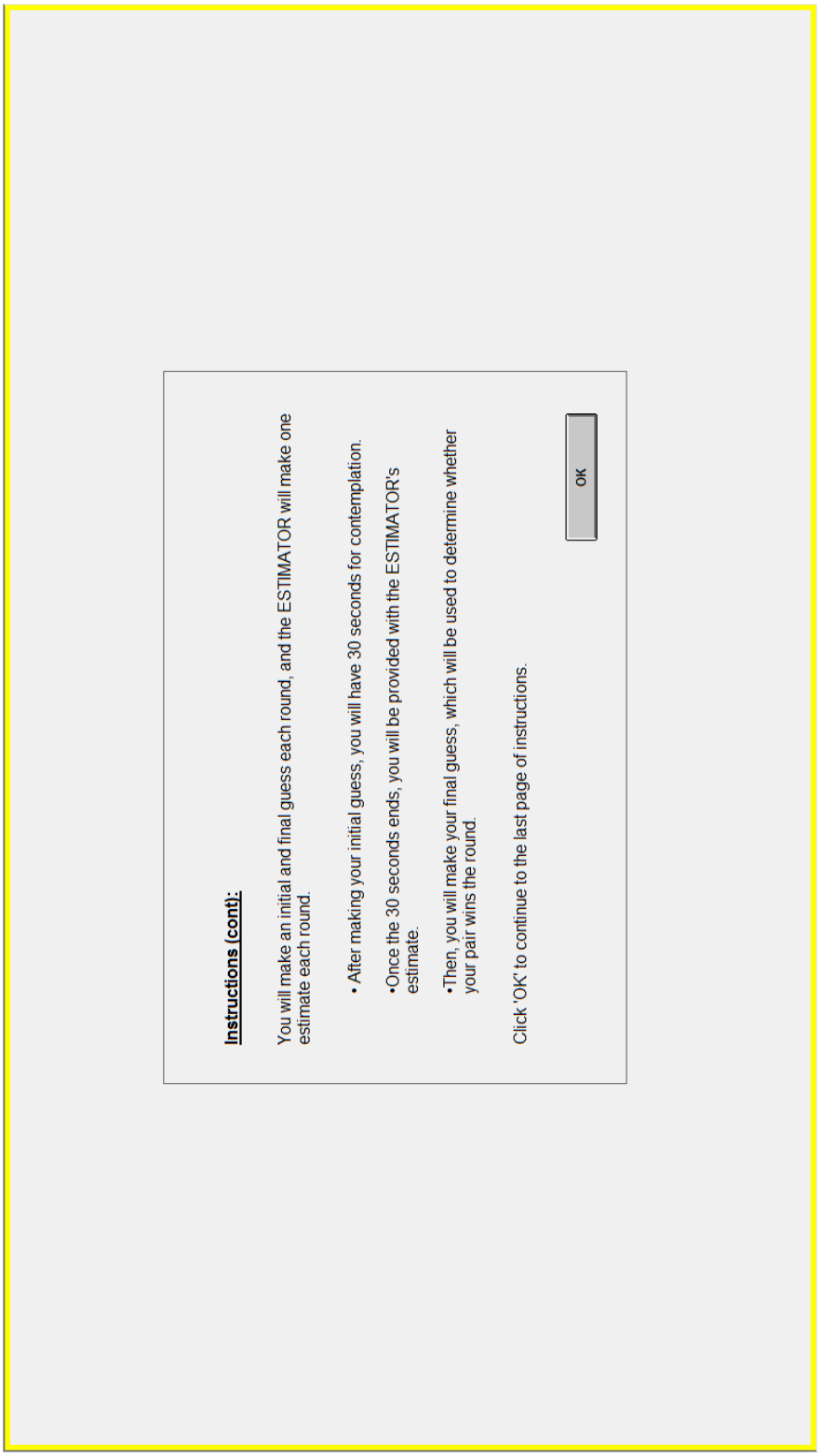
[MISMATCHED Condition]

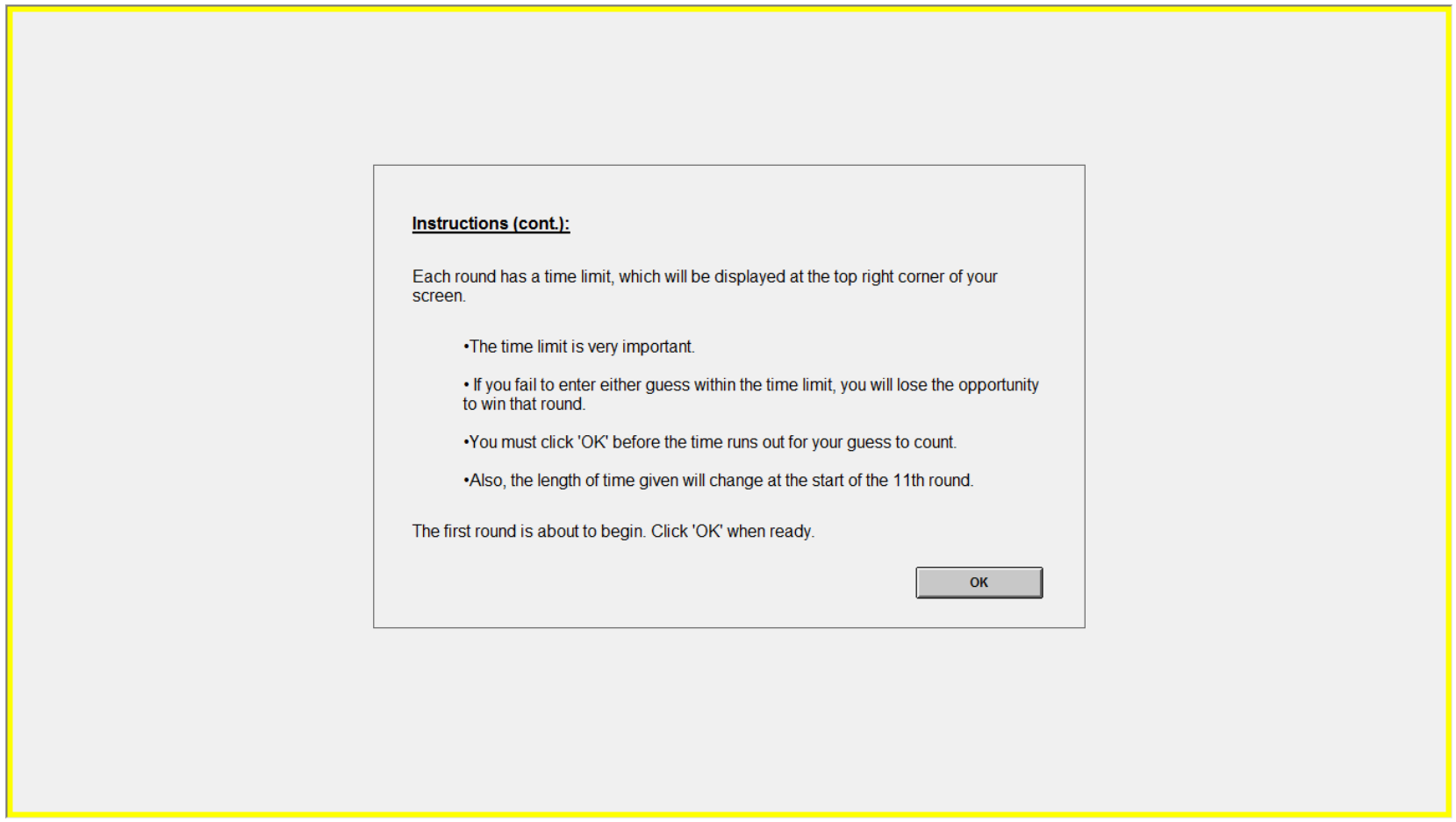


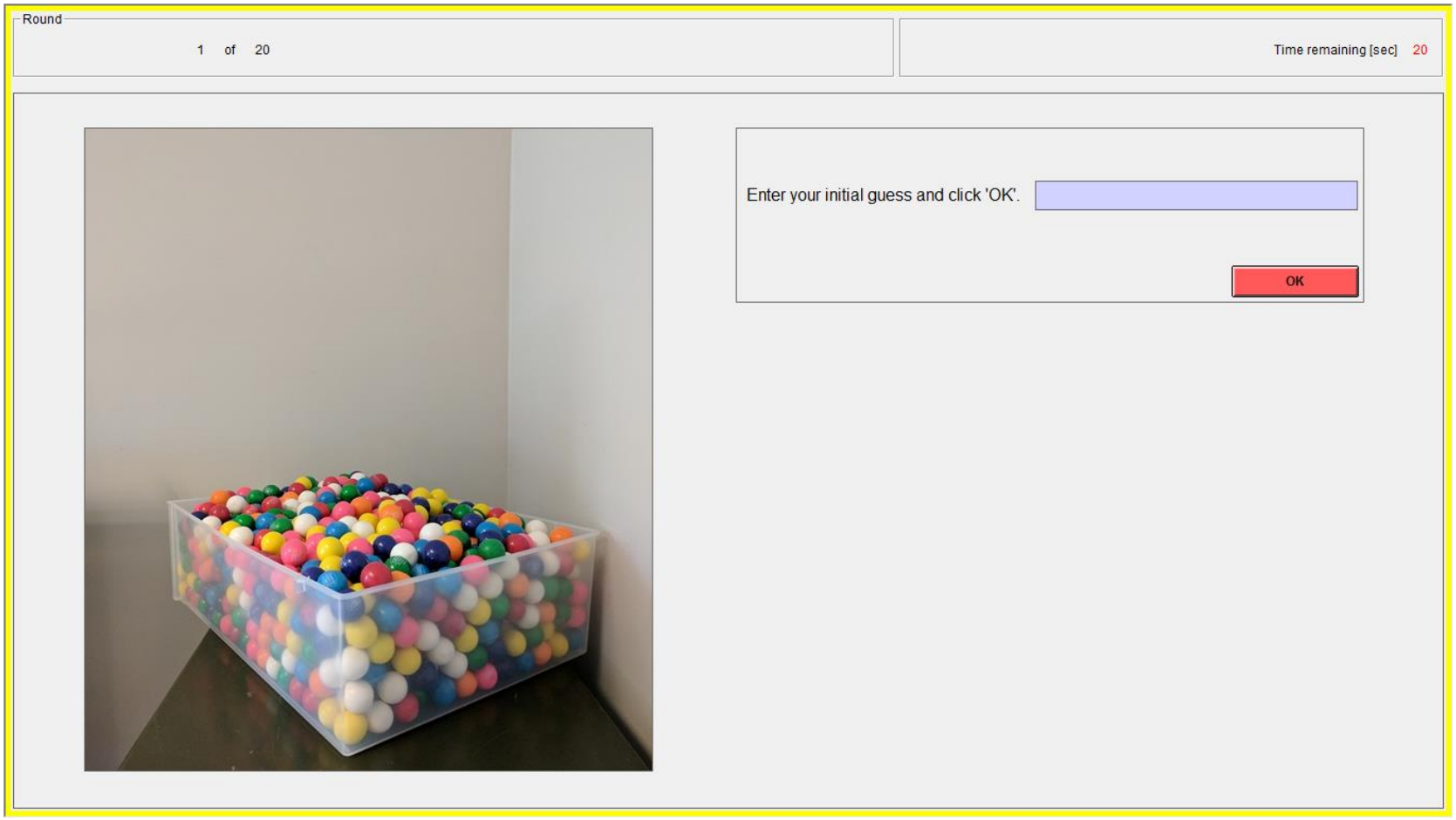
[CHAT Condition]



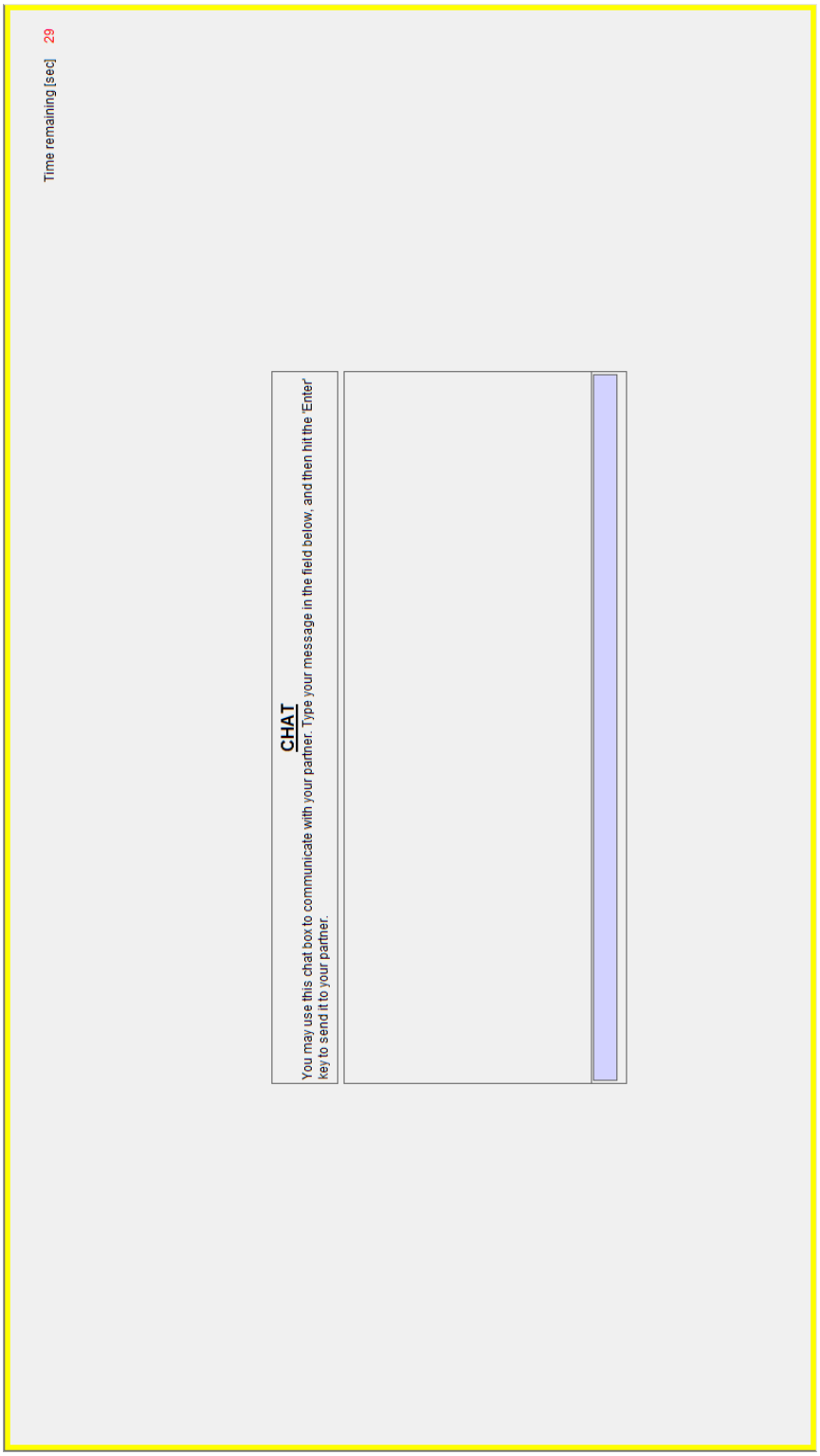
[NO CHAT Condition]



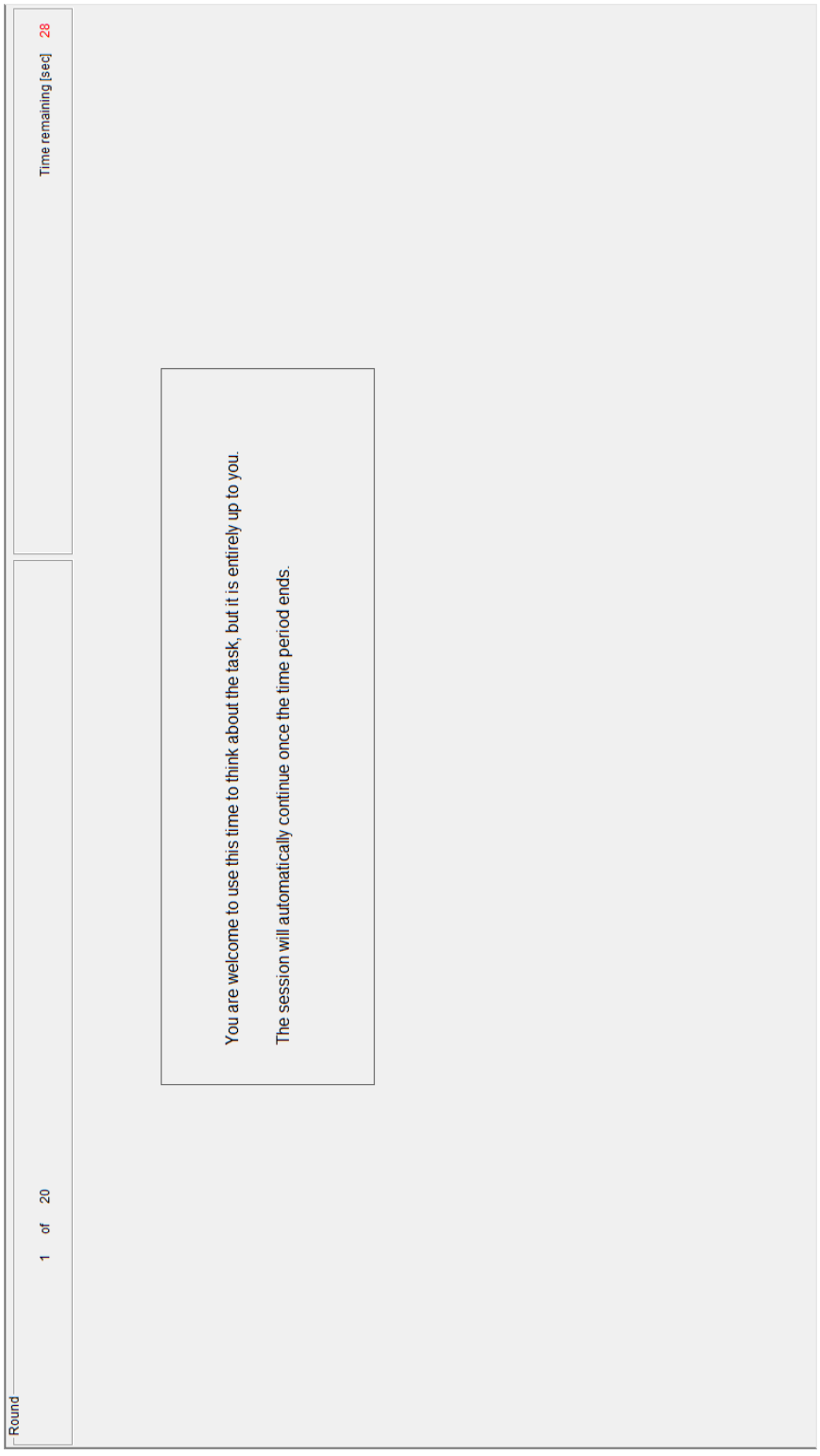

Instructions (cont.):
Each round has a time limit, which will be displayed at the top right corner of your screen.
•The time limit is very important.
• If you fail to enter either guess within the time limit, you will lose the opportunity to win that round.
•You must click 'OK' before the time runs out for your guess to count.
•Also, the length of time given will change at the start of the 11th round.
The first round is about to begin. Click 'OK' when ready.
OK

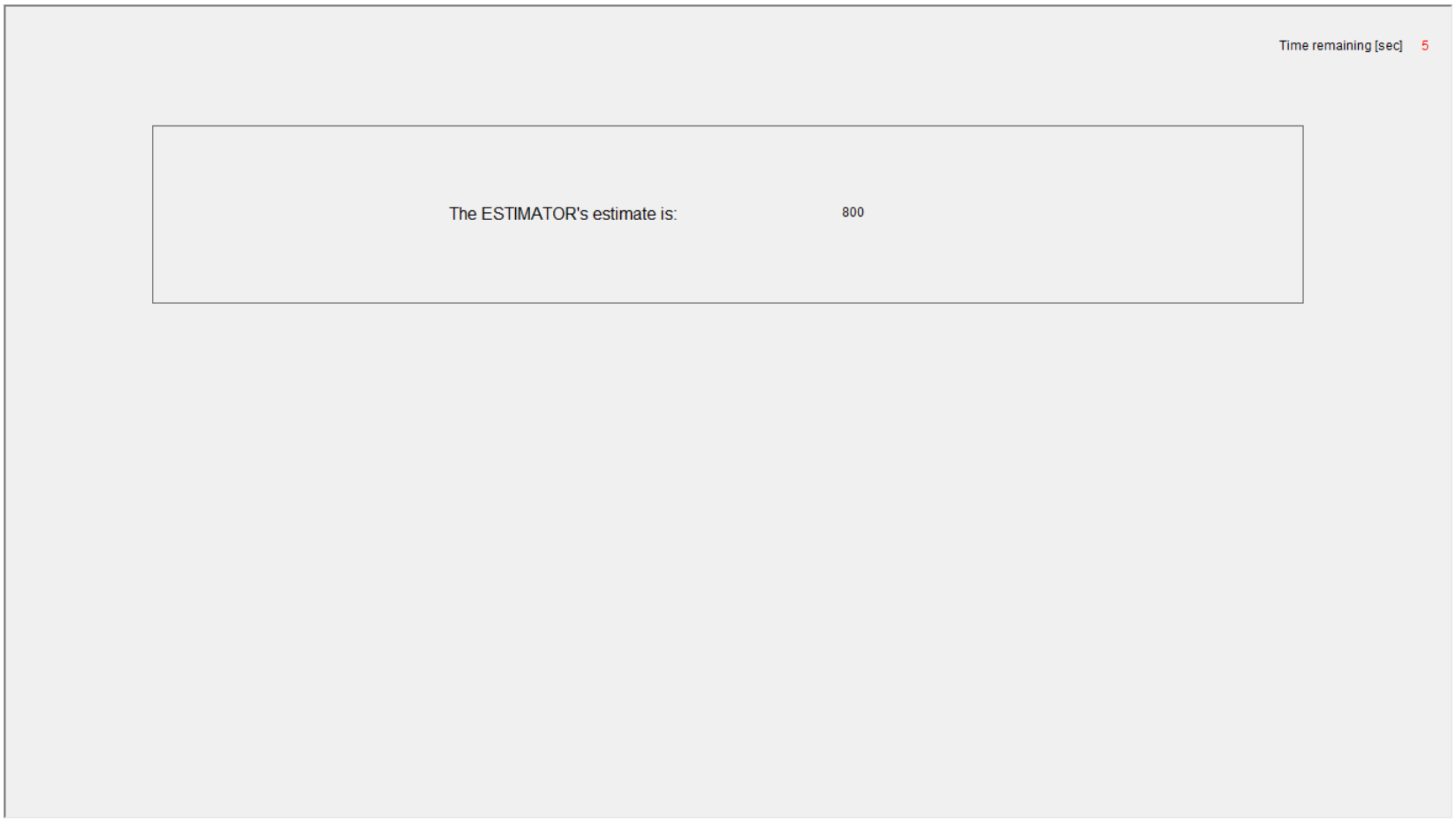

Round
1 of 20
Time remaining [sec] 20
Enter your initial guess and click 'OK'.
OK

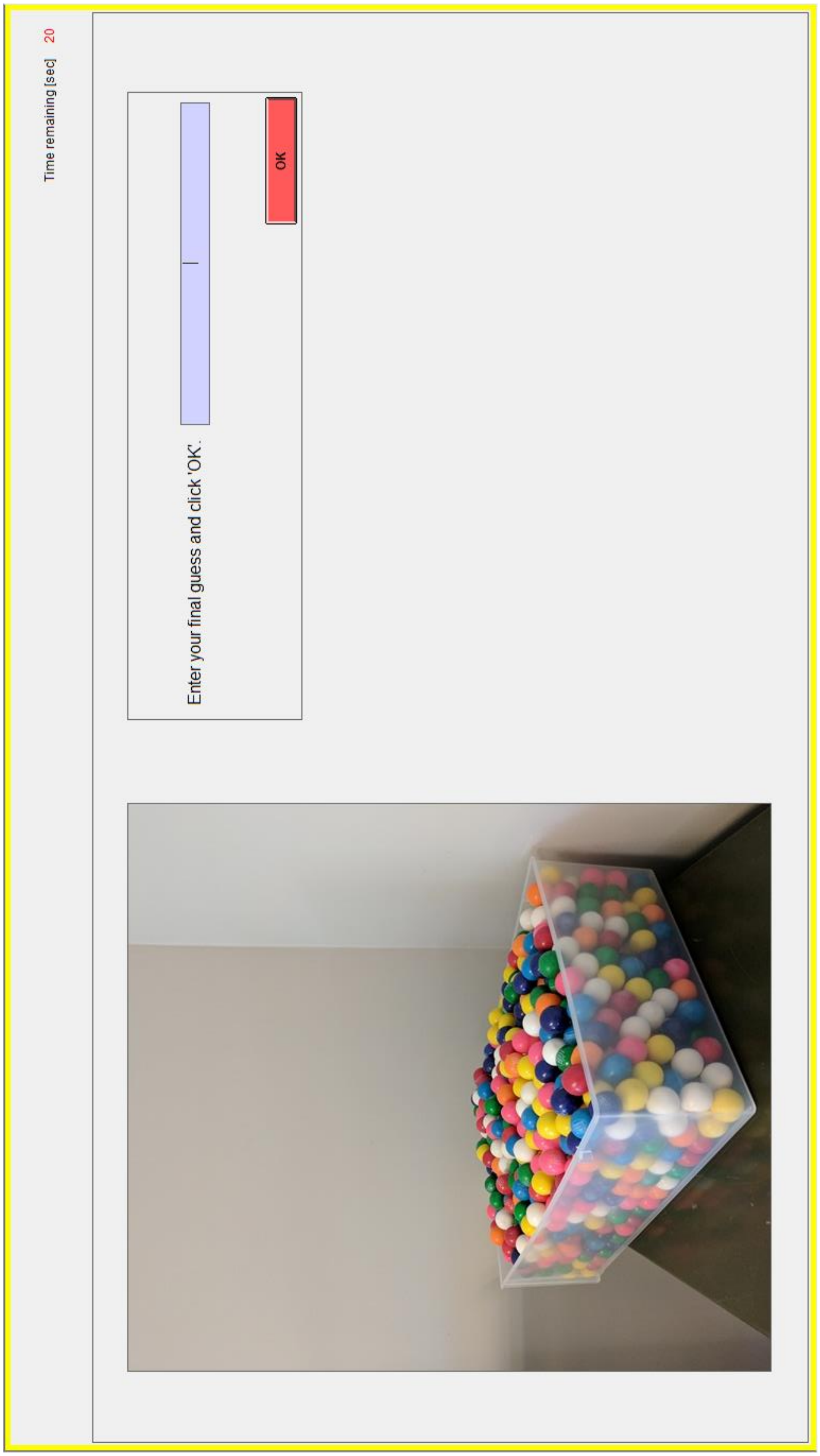
[CHAT Condition]



[NO CHAT Condition]




Time remaining [sec] 5
The ESTIMATOR's estimate is:
800


Time remaining [sec] 20
Enter your final guess and click 'OK'.
OK

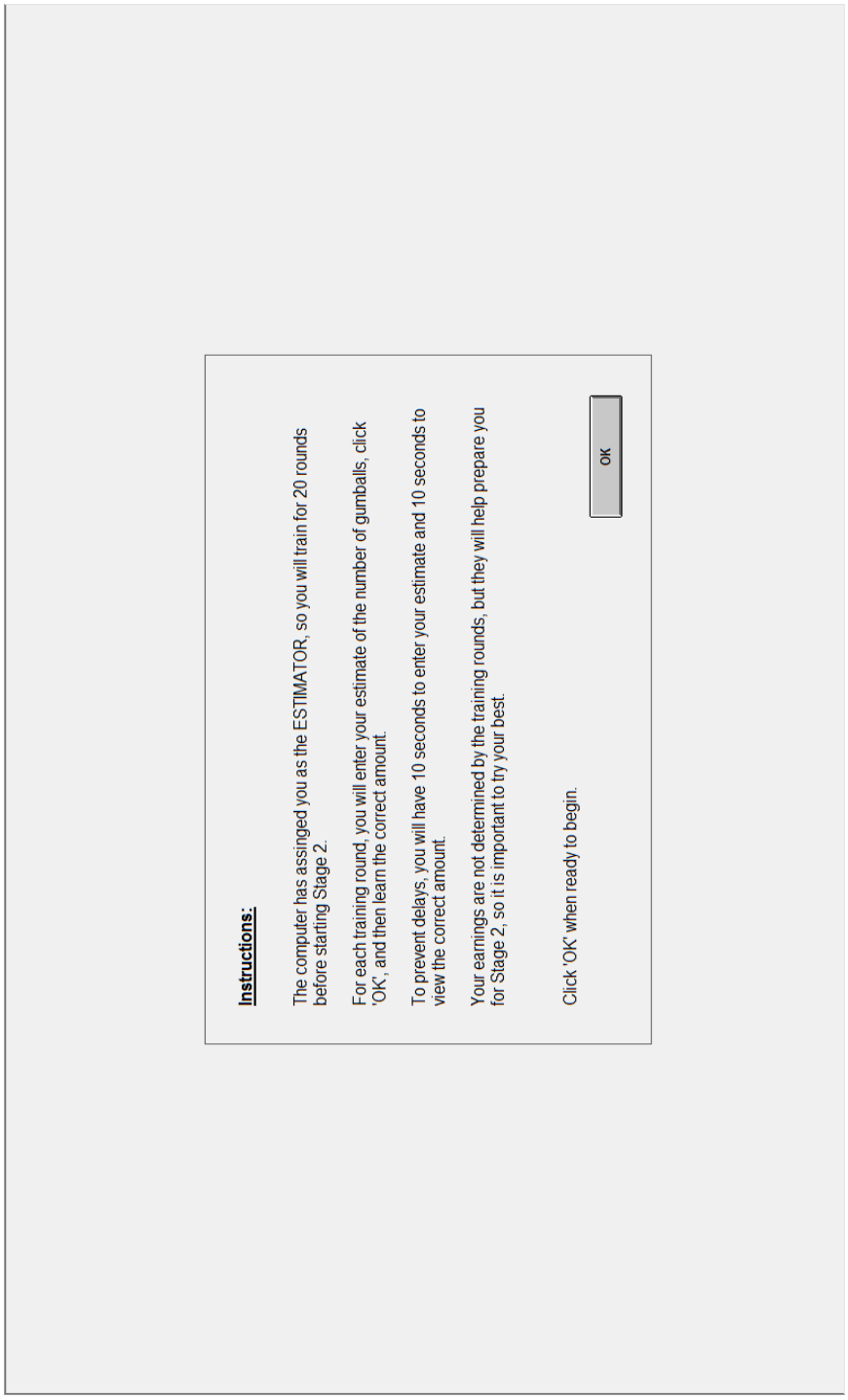
Thank you for participating in today's study.

At this time, you will be asked to fill out a questionnaire. Once finished, please put your materials back in the envelope.

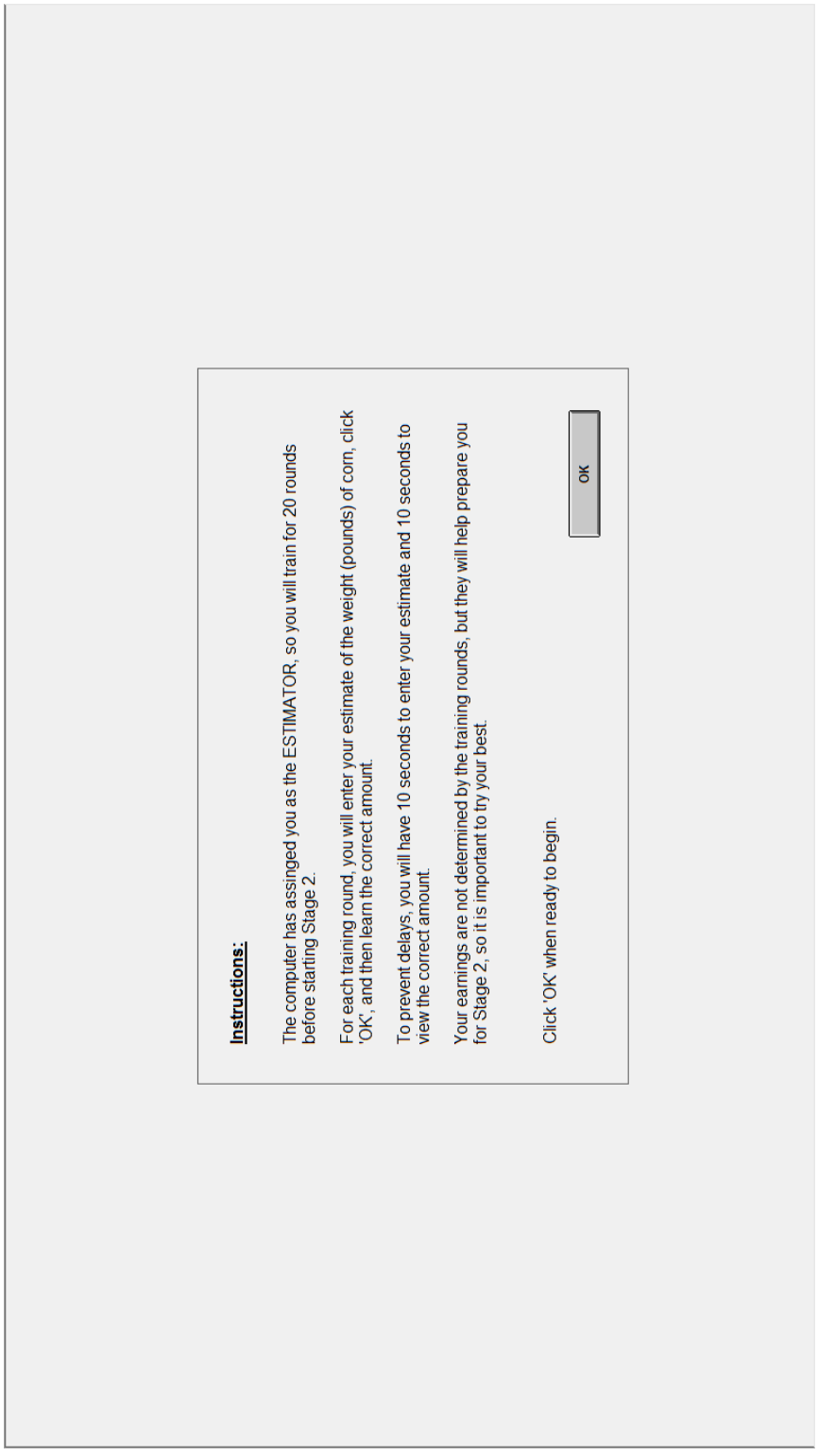
You will then receive your earnings from the session supervisor and sign a receipt form before leaving.

(Specialist)

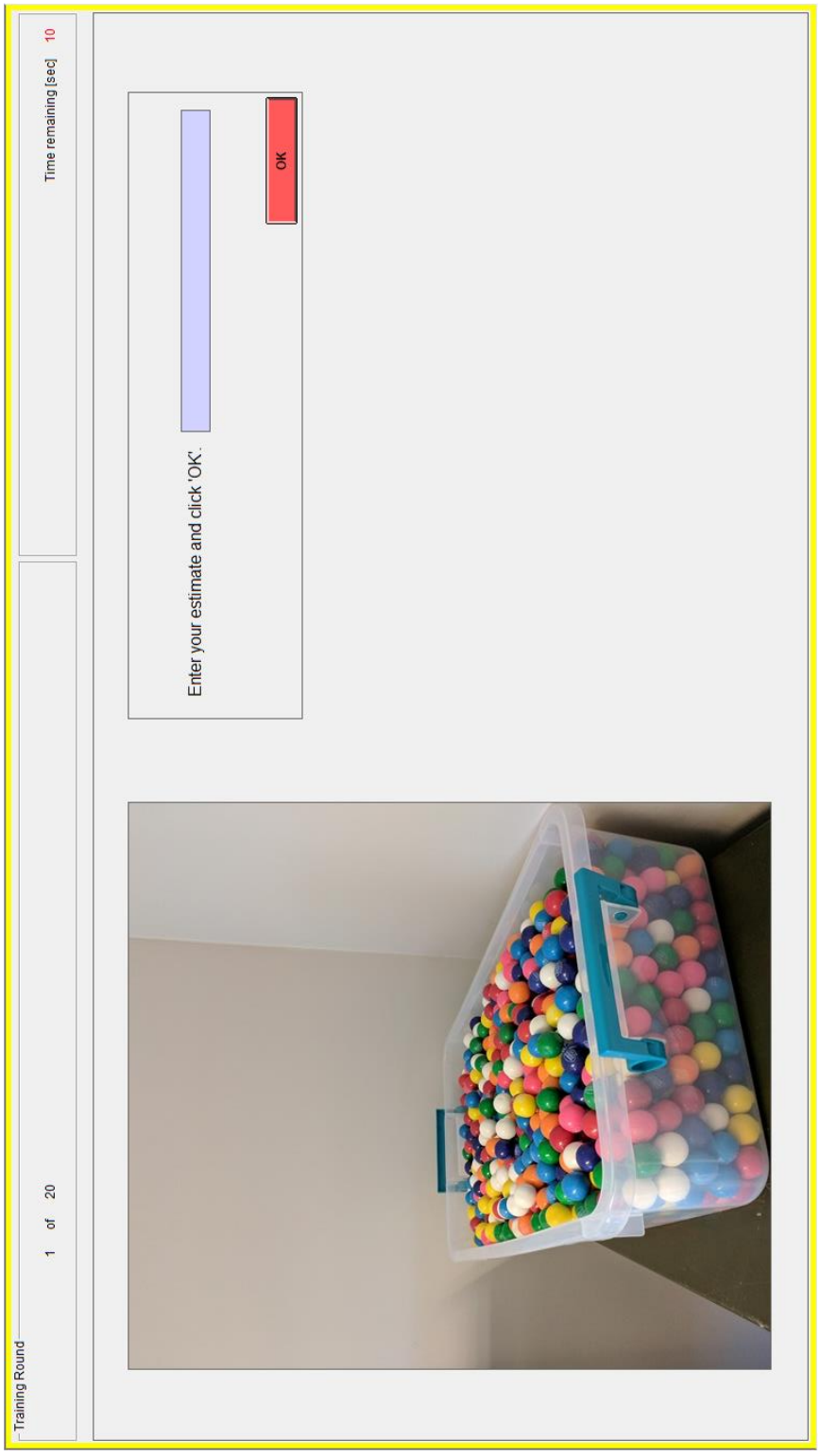
[MATCHED Condition]



[MISMATCHED Condition]

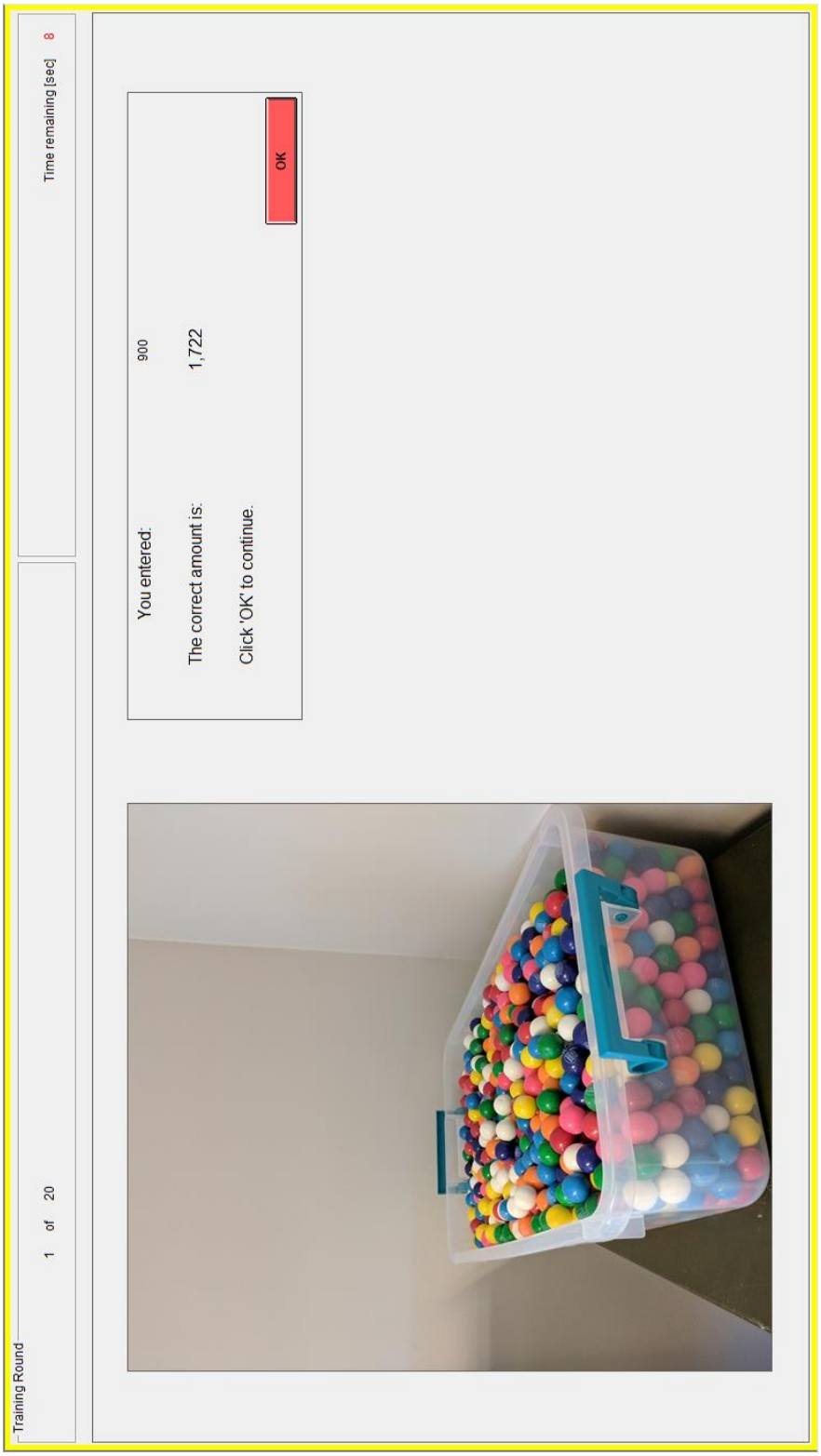


[MATCHED Condition]

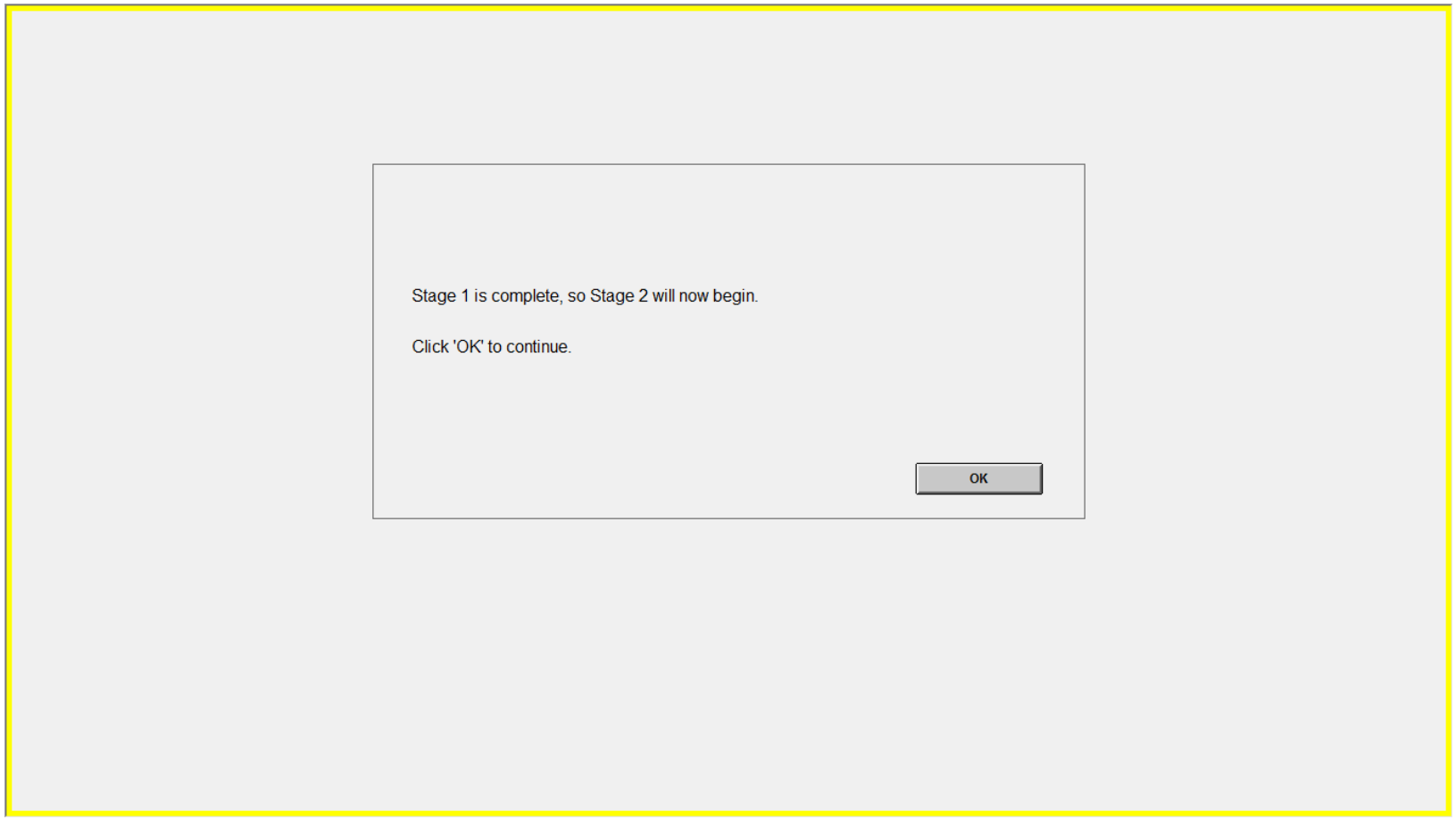


Note: MISMATCHED Condition is same photo, but with kernels of corn instead of gumballs.

[MATCHED Condition]



Note: MISMATCHED Condition is same photo, but with kernels of corn instead of gumballs.


Stage 1 is complete, so Stage 2 will now begin.
Click 'OK' to continue.
OK

Instructions:

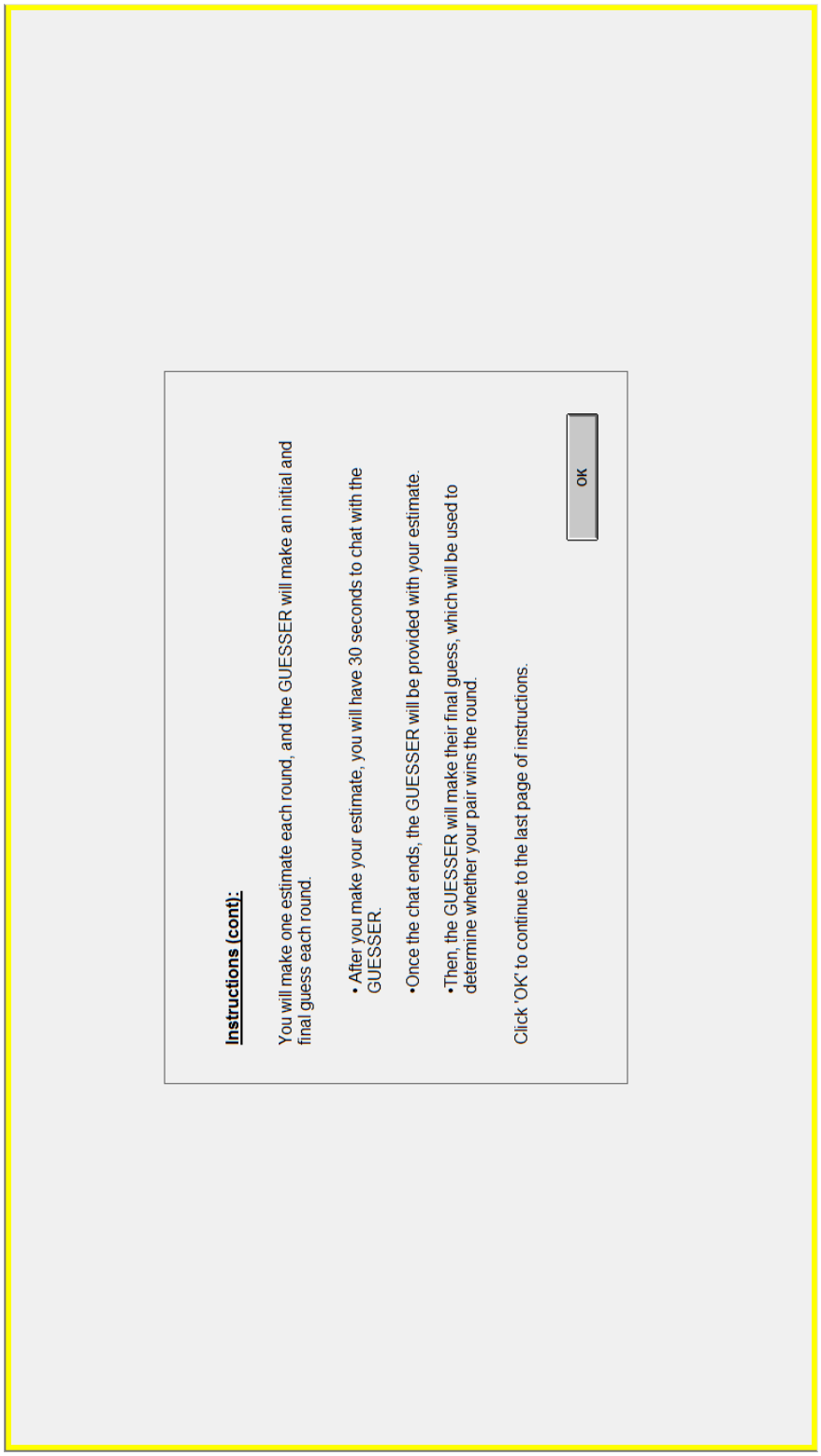
Each round, you will be shown a picture of a container with gumballs. Your task is to estimate how many gumballs are in the container.

- The computer has assigned you as the ESTIMATOR and has paired you with a GUESSER, who will remain your partner for all 20 rounds.
- You and the GUESSER are considered a team, and your earnings will be determined by the decisions you make together.
- The GUESSER has not received estimation training.

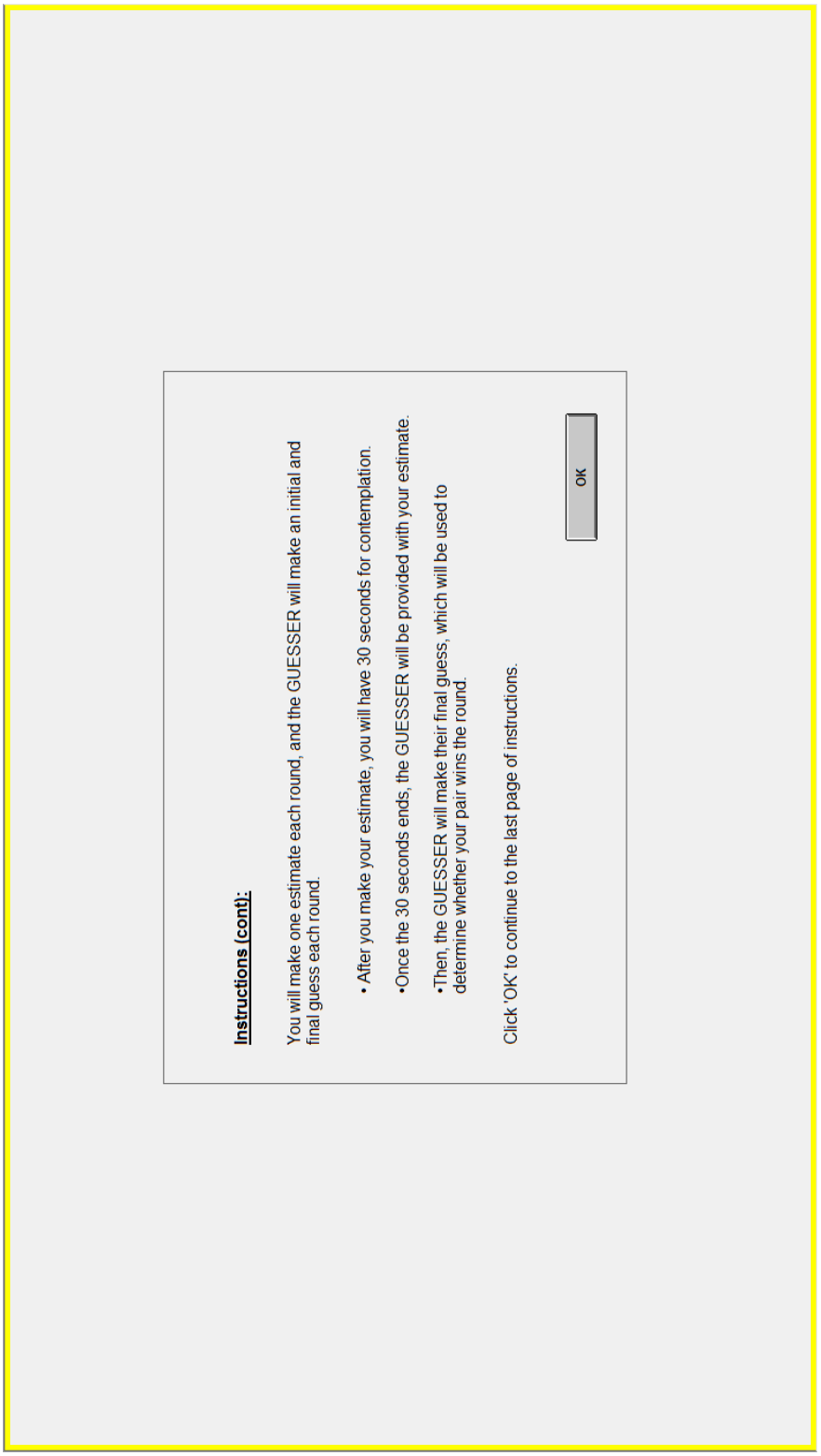
Click 'OK' to continue to the next page of instructions.

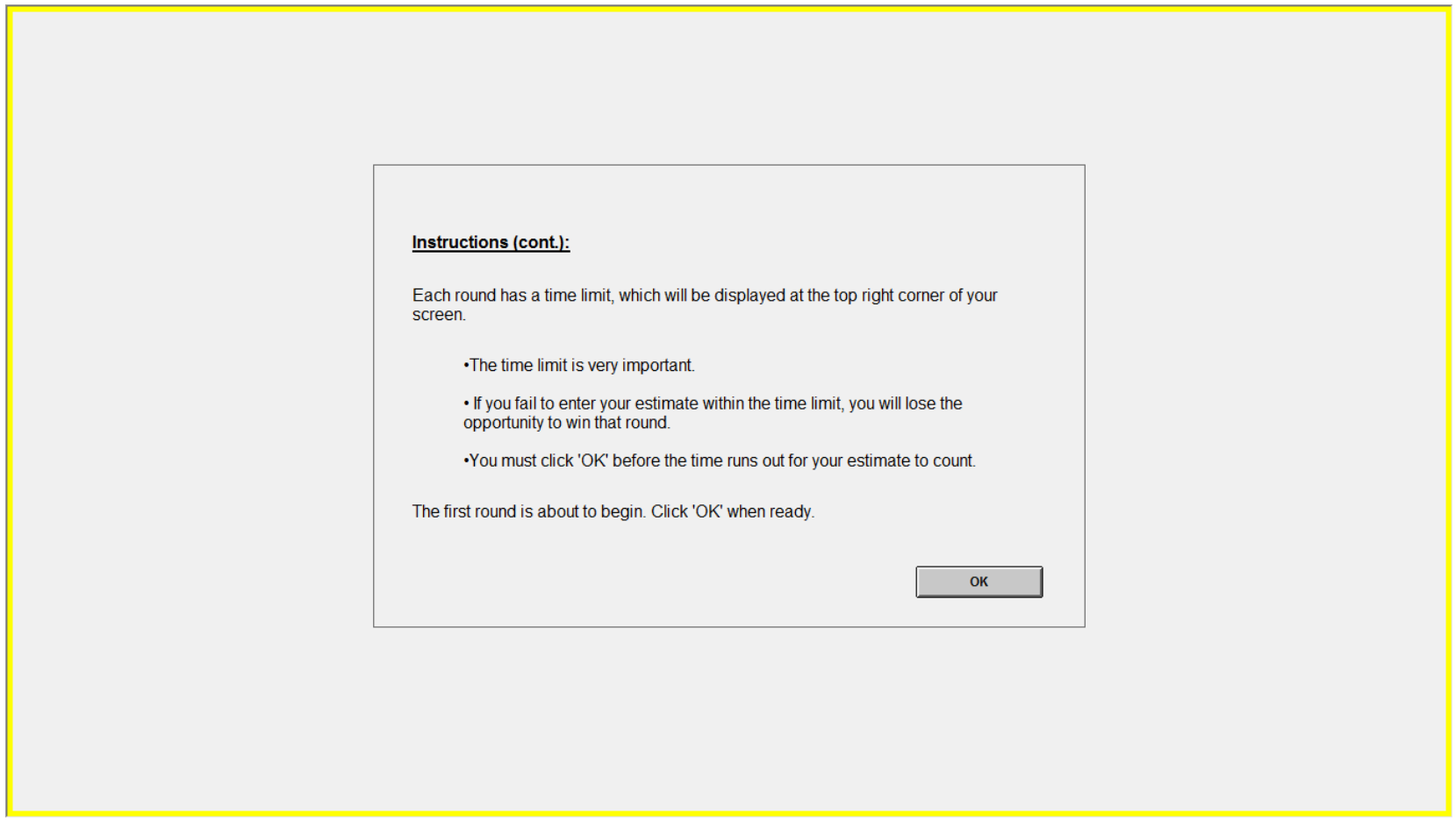
OK

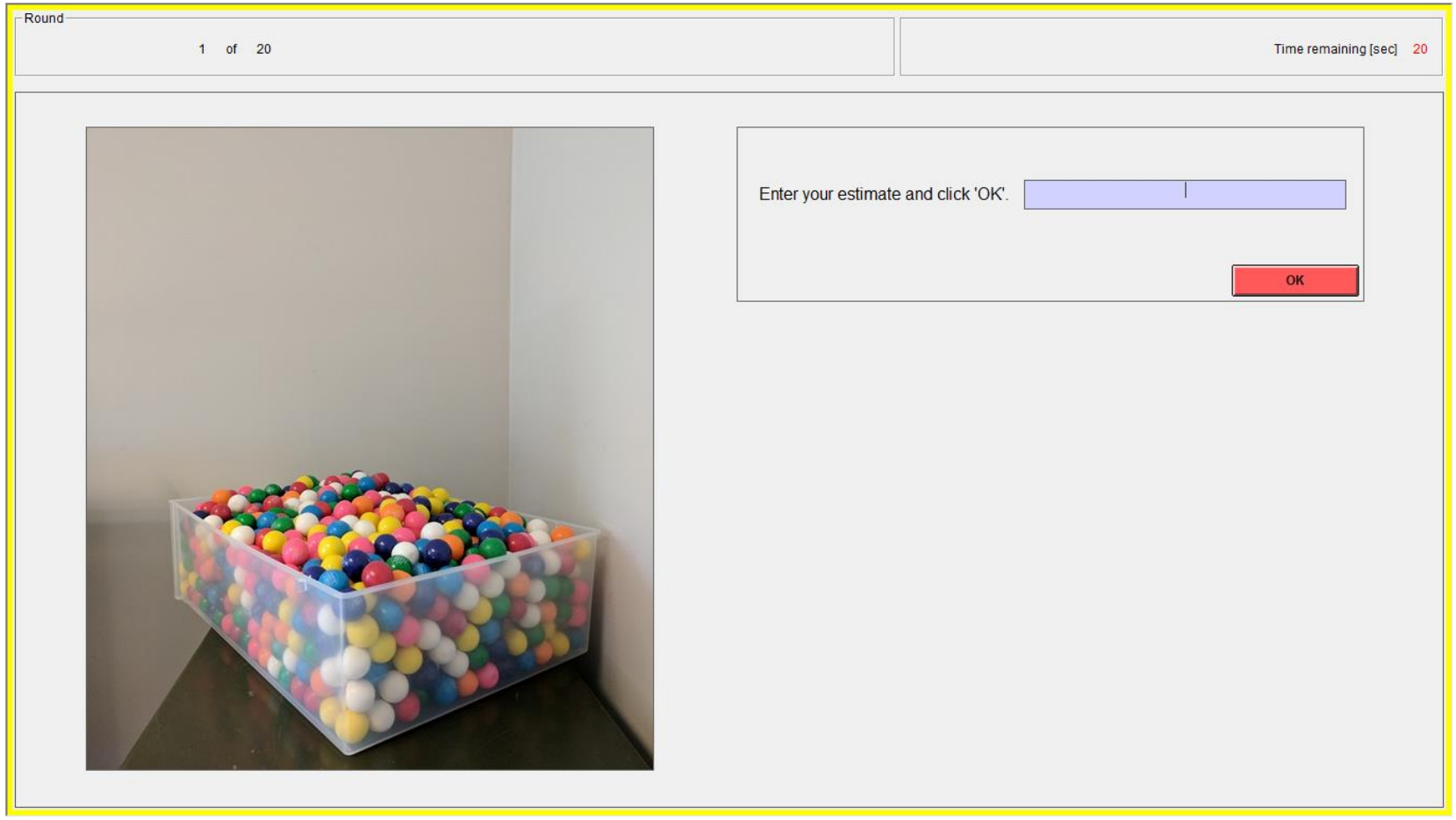
[CHAT Condition]



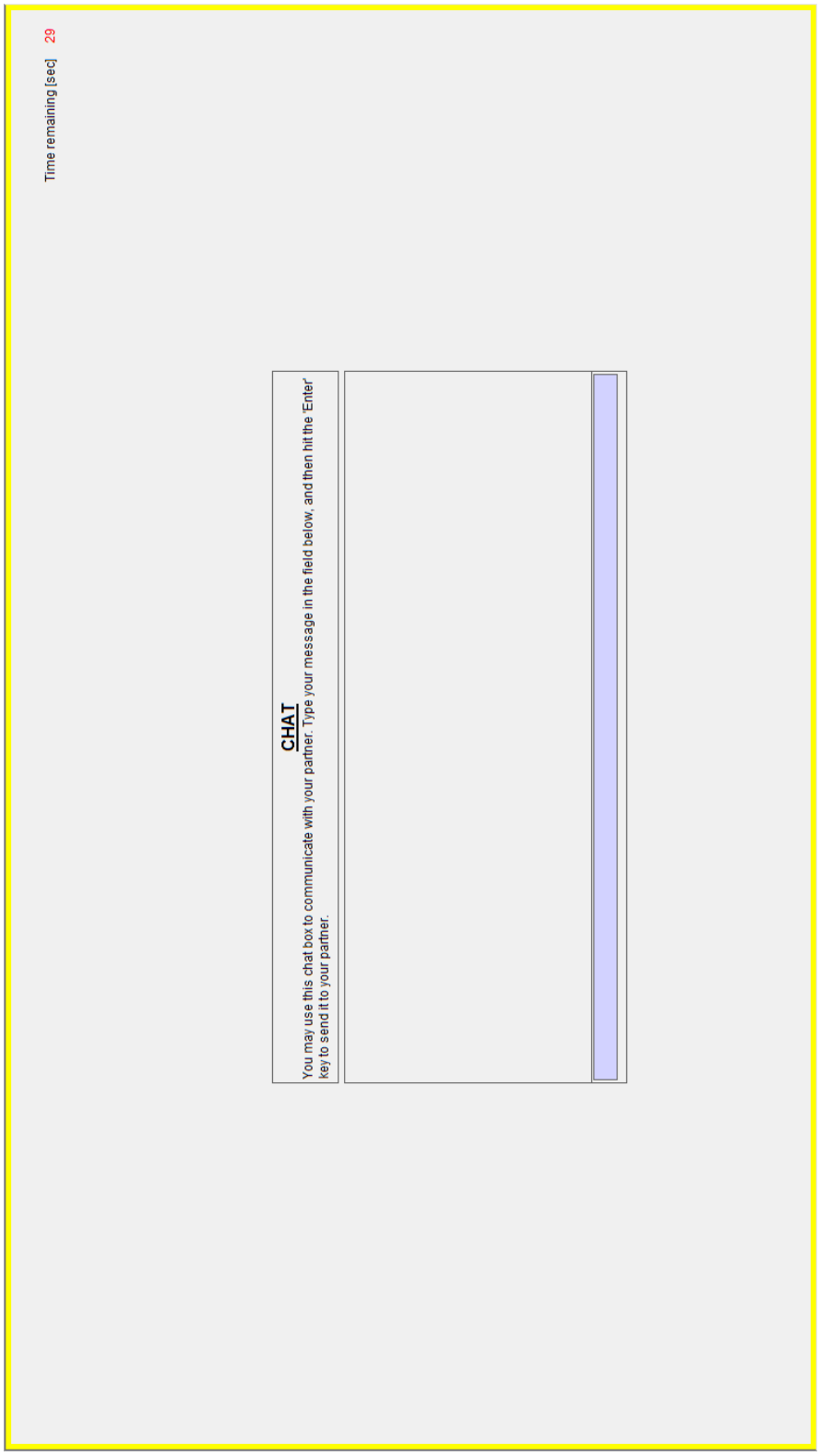
[NO CHAT Condition]



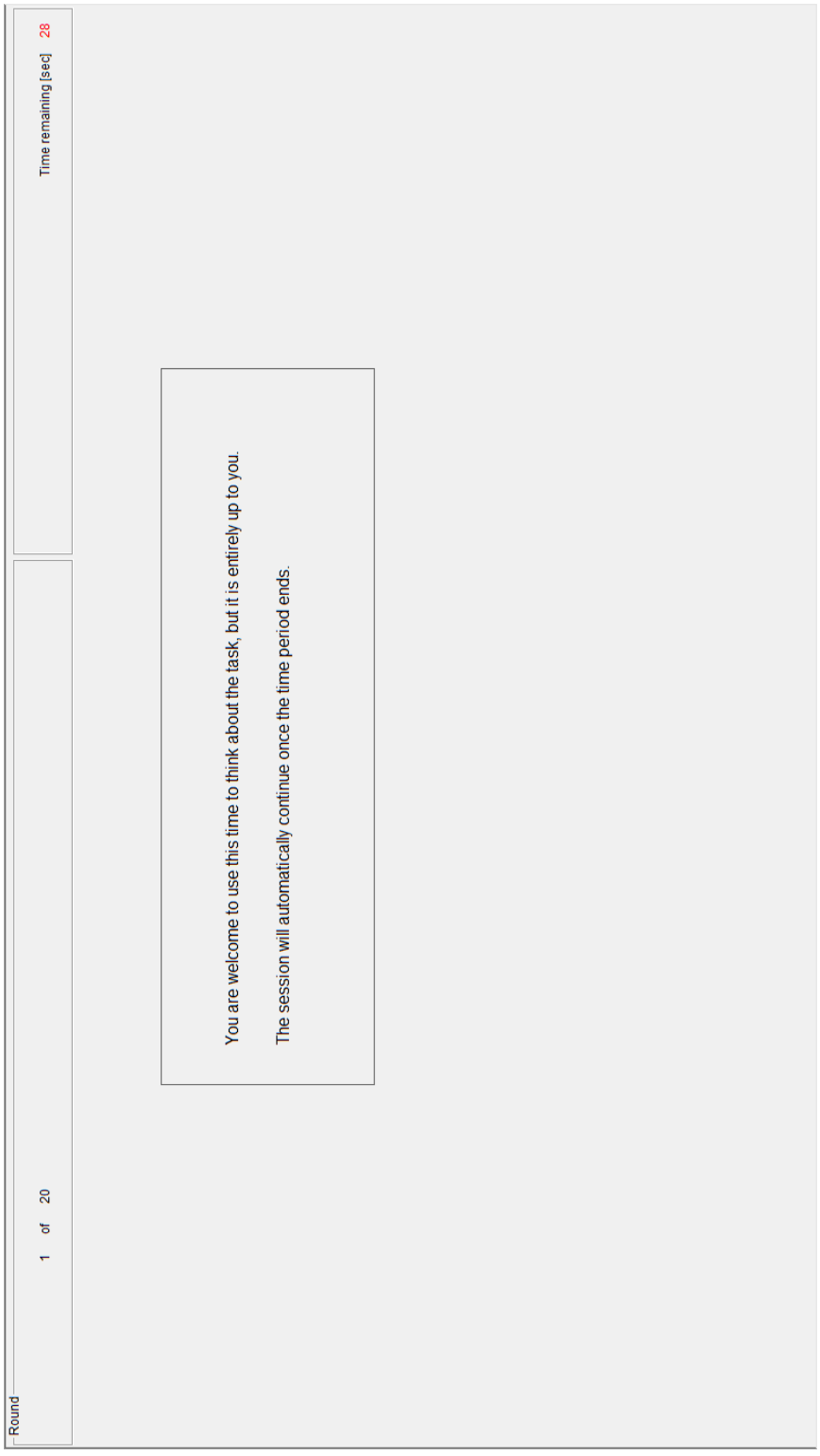

Instructions (cont.):
Each round has a time limit, which will be displayed at the top right corner of your screen.
•The time limit is very important.
• If you fail to enter your estimate within the time limit, you will lose the opportunity to win that round.
•You must click 'OK' before the time runs out for your estimate to count.
The first round is about to begin. Click 'OK' when ready.
OK


Round
1 of 20
Time remaining [sec] 20
Enter your estimate and click 'OK'.
OK

[CHAT Condition]



[NO CHAT Condition]



Thank you for participating in today's study.

At this time, you will be asked to fill out a questionnaire. Once finished, please put your materials back in the envelope.

You will then receive your earnings from the session supervisor and sign a receipt form before leaving.

APPENDIX C: Post-experimental Questionnaire

Please write your Participant ID Number: _____

Based on today's study, please indicate whether the following statements are true or false:

1. Each Estimator participated in 20 training rounds before starting Stage 2.
    a. True
    b. False

2. The training task in Stage 1 was the same as the task in Stage 2 (estimating the number of gumballs).
    a. True
    b. False

3. Stage 2 paired each Guesser with the same Estimator for all 20 rounds to work as a team.
    a. True
    b. False

4. Stage 2 limited the time allowed to enter an estimate for some, but not all 20 rounds.
    a. True
    b. False

5. During Stage 2, the Estimator submitted the final amount to determine which pair won the round.
    a. True
    b. False

6. It was still possible to win the round if the time limit ran out before entering an estimate.
    a. True
    b. False

7. Each round in Stage 2, the winning Guesser-Estimator pair split an additional $10 prize.
    a. True
    b. False

Please circle on the scale how much you agree or disagree with the following statements about today's study:

	Strongly Disagree						**Strongly Agree**
The training rounds provided relevant experience for the task in Stage 2.	1	2	3	4	5	6	7
We were able to make more accurate estimates in Stage 2 because of the training rounds.	1	2	3	4	5	6	7
I did not trust my partner.	1	2	3	4	5	6	7
I was confident in my partner's estimation accuracy.	1	2	3	4	5	6	7
I was confident in my own estimation accuracy.	1	2	3	4	5	6	7
I felt that I was more qualified than my partner to complete the estimation task.	1	2	3	4	5	6	7
I was more confident in the accuracy of my partner after communicating with them.	1	2	3	4	5	6	7
I developed a bond with my partner.	1	2	3	4	5	6	7
My partner has relevant expertise to complete the estimation task.	1	2	3	4	5	6	7
I have relevant expertise to complete the estimation task.	1	2	3	4	5	6	7
The time limit made me feel rushed.	1	2	3	4	5	6	7

General Questions (*for multiple choice, only circle one answer*):

1. What is your age? _____

2. What is your gender?
    a. Female
    b. Male

3. How would you classify yourself?
    a. American Indian/Alaska Native
    b. Asian
    c. Black/African American
    d. Hispanic/Latino
    e. Native Hawaiian/Pacific Islander
    f. White/Caucasian
    g. Multiracial
    h. Would rather not say
    i. Other; Please specify_____

4. What is the highest level of education you have completed?
    a. High school or equivalent
    b. Vocational/technical school (2 year)
    c. Some college
    d. Bachelor's degree
    e. Master's degree
    f. Doctoral degree
    g. Professional degree (MD, JD, etc.)
    h. Other; Please specify_____

5. What is your current student status?
    a. Undergraduate
    b. Graduate
    c. Other; Please specify_____

6. What is your current/intended major?
    a. Accounting
    b. Finance
    c. Marketing
    d. Management
    e. Information Systems
    f. Undecided
    g. Other; Please specify_____

7. What is your expected graduation year?
    a. 2017
    b. 2018
    c. 2019
    d. 2020
    e. 2021
    f. 2022 or later

Please circle the response that indicates how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement.

	Strongly Disagree						**Strongly Agree**
I often accept other people's explanations without further thought.	1	2	3	4	5	6	7
I feel good about myself.	1	2	3	4	5	6	7
I wait to decide on issues until I can get more information.	1	2	3	4	5	6	7
I am confident of my abilities.	1	2	3	4	5	6	7
I often reject statements unless I have proof that they	1	2	3	4	5	6	7
I take my time when making decisions.	1	2	3	4	5	6	7
I tend to immediately accept what other people tell me.	1	2	3	4	5	6	7
I am self-assured.	1	2	3	4	5	6	7
My friends tell me that I usually question things that I see or hear.	1	2	3	4	5	6	7
I usually accept things I see, read, or hear at face value.	1	2	3	4	5	6	7
I do not feel sure of myself.	1	2	3	4	5	6	7
I usually notice inconsistencies in explanations.	1	2	3	4	5	6	7

	Strongly Disagree						**Strongly Agree**
Most often I agree with what the others in my group think.	1	2	3	4	5	6	7
I dislike having to make decisions quickly.	1	2	3	4	5	6	7
I have confidence in myself.	1	2	3	4	5	6	7
I do not like to decide until I've looked at all of the readily available information.	1	2	3	4	5	6	7
I frequently question things that I see or hear.	1	2	3	4	5	6	7
It is easy for other people to convince me.	1	2	3	4	5	6	7
I like to ensure that I've considered most available information before making a decision.	1	2	3	4	5	6	7

VITA

SARA T. GOCHNAUER, CPA

Patterson School of Accountancy
The University of Mississippi
200 Conner Hall
University, MS 38677

stgochna@olemiss.edu
Phone: (662) 915-3982
Fax: (662) 915-7483

EDUCATION

2010 – 2011	**Rhodes College** Master of Science, Accounting, May 2011
2006 – 2010	**Rhodes College** Bachelor of Arts, Economics and Business Administration, May 2010, *Magna Cum Laude*

WORK EXPERIENCE

2013 – Present	**The University of Mississippi** Various Graduate Assistantship Appointments (AICPA Librarian, Instructor, and Research Assistant)
2011 – 2013	**Ernst & Young, LLP** Staff Accountant, Assurance Division
Fall 2010	**Rhodes College** Graduate Assistant
Summer 2010	**Ernst & Young, LLP** Intern Accountant, Assurance Division
Spring 2010	**Thompson Dunavant, PLC** Intern Accountant, Audit Division
2008 – 2011	**Rhodes College** Undergraduate Peer Tutor, Economics and Business Administration

PROFESSIONAL CERTIFICATION

Certified Public Accountant, Tennessee, 2012 – Present

RESEARCH

Research Interests:

Auditor judgments and decision-making, experimental economics, auditor industry specialization, use of specialists (valuation, fraud, etc.) in audits, complex estimates, measurement uncertainty, professional skepticism

Dissertation:

How Do Specialist Expertise, Auditor-Specialist Communication, and Time Pressure Affect Auditors' Use of Specialists' Valuations?

Committee members: Kendall O. Bowlin (Chair), John P. Bentley, Brett W. Cantrell, Jeremy B. Griffin, and Jeffrey S. Pickerd of the University of Mississippi

Other Current Projects:

The Effects of Contextual Client Information and Independent Estimates on Auditors' Use of Specialist Valuations (with Kendall O. Bowlin and Jeremy B. Griffin of the University of Mississippi)

Auditor Response to Industry-Level News Affecting the Audit Client (with Kendall O. Bowlin and Victoria Dickinson of the University of Mississippi)

Presentations:

"How Do Specialist Expertise, Auditor-Specialist Communication, and Time Pressure Affect Auditors' Use of Specialists' Valuations?"

Northern Arizona University, January 2018
Bucknell University, January 2018
Accounting PhD Rookie Recruiting and Research Camp, December 2017
Graduate Research in Accounting Conference at Emory, August 2017
The University of Mississippi, Dissertation Proposal, July 2017 (*Successfully Defended*)

"Under What Conditions do Auditors Rely on Specialists' Work Regarding Complex Estimates?"

Deloitte Doctoral Consortium, Small Group Presentation, June 2016

"Auditor Response to Industry-Level News Affecting the Audit Client"

The University of Mississippi, Second Year Paper Presentation, April 2016

TEACHING EXPERIENCE

The University of Mississippi

Introduction to Accounting Principles I – ACCY 201
Spring 2014 – Spring 2017, 7 Total Sections, Average Rating: 4.5/5.0

Introduction to Accounting Principles II – ACCY 202
Fall 2013 – Spring 2016, 6 Total Sections, Average Rating: 4.4/5.0

AWARDS, GRANTS, & HONORS

University of Mississippi Fall Dissertation Fellowship, 2017
University of Mississippi Summer Graduate Research Grant, 2017
University of Mississippi Doctoral Teaching Award, 2017
AAA Deloitte J. Michael Cook Doctoral Consortium Fellow, 2016
University of Mississippi Graduate Achievement Award, 2015
University of Mississippi Graduate School Assistantship, 2013-Present
Rhodes College Graduate Accounting Grant, 2010-2011
Thompson Dunavanat, PLC Accounting Award (Senior), 2010
Thompson Dunavanat, PLC Accounting Award (Junior), 2009
Tennessee Society of Certified Public Accountants Scholarship Award, 2009
Rhodes College University Scholarship, 2006-2010
Rhodes College Grant, 2006-2010

CONFERENCE PARTICIPATION

AAA Audit Midyear Meeting, 2018
Discussant
AAA Accounting PhD Rookie Recruiting & Research Camp, 2017
Presenter: "How Do Specialist Expertise, Auditor-Specialist Communication, and Time Pressure Affect Auditors' Use of Specialists' Valuations?"
AAA Accounting Behavior and Organizations Research Conference, 2017
Graduate Research in Accounting Conference at Emory (GRACE), 2017
Presenter: "How Do Specialist Expertise, Auditor-Specialist Communication, and Time Pressure Affect Auditors' Use of Specialists' Valuations?"
AAA Annual Meeting, 2017
Discussant: ABO section; Auditing section
Moderator: ABO section; Auditing section
Reviewer: Auditing section
AAA Audit Midyear Meeting, 2017
Doctoral Consortium Participant
Reviewer
AAA Accounting PhD Rookie Recruiting & Research Camp (*Observer only*), 2016
AAA Accounting Behavior and Organizations Research Conference, 2016

Doctoral Consortium Participant
AAA Annual Meeting, 2016
AAA/Deloitte Foundation/J. Michael Cook Doctoral Consortium, 2016
Small Group Presentation: "Under What Conditions do Auditors Rely on Specialists' Work Regarding Complex Estimates?"
AAA Audit Midyear Meeting, 2016
AAA Financial Accounting and Reporting Section Midyear Meeting, 2014
Doctoral Consortium Participant

PROFESSIONAL AND ACADEMIC MEMBERSHIPS

American Accounting Association Member
ABO Section Member
Auditing Section Member
Phi Kappa Phi, Interdisciplinary Academic Honor Society
Omicron Delta Epsilon, International Economics Honor Society
Chi Alpha Sigma, National College Athlete Honor Society